

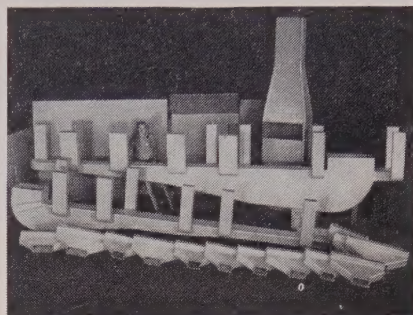
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## PLA-TANK<sup>®</sup> RESIN-BONDED FIBERGLAS<sup>®</sup> PLATING TANKS INCLUDED

Process tanks for plating solutions and passivating dips were included in this large order placed by a well-known aviation company for installation in their new plant. This picture shows only the Exhaust Hoods complete with Ducts for the down draft exhaust system which was connected to the tanks.

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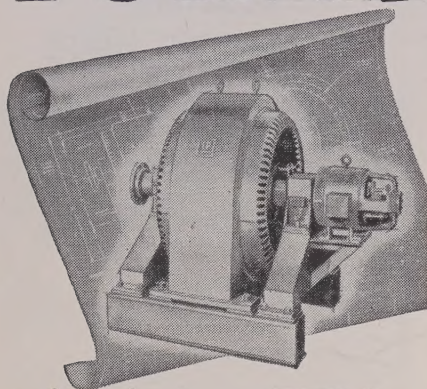
You'll find PLA-TANK ideal for your plating room use. Many sizes in stock for immediate shipment — special sizes made to order. PLA-TANK also makes a perfect lining for steel tanks. Supplied in sections, it is welded in place on the job to make one strong, sturdy unit.

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X-74

# Behind the Scenes...

## Teach the Teacher

Jim L. Fife was in town a week or so ago. He's connected with a unique Westinghouse project, a small part in which STEEL and Penton Publishing Co. has played.

Jim is an instructor in technical writing at the University of Iowa. Westinghouse invited him for the summer to their plants where he's studying the writing requirements upon Westinghouse engineers. As part of his three months of on-the-spot study, he came up to Cleveland for a week to see how an industrial publication is put together.

"I'll have a lot to pass along next fall to my students in the College of Engineering," he says. "I'm amazed at the complexity of putting out a weekly magazine."

## Hectic

Some of the editors got new realization of that complexity in the July 28 issue, for news of the steel strike came eight minutes before part of the magazine was going to press. The forms were all ready and had to be taken back to the stone and re-vamped. Two pages were completely redone and changes were made in several others.

Other pages had already gone to press that contained references to the strike, but they couldn't be changed. They included the Business Trend pages.

The final form of the magazine went to press nearly two hours late. In the excitement, an added attraction was a spectacular fire in the Hotel Cleveland, which is not far from the editorial precincts. Along about 6:30 in the evening, editors saw flames shooting 50 feet above the roof of the hostelry. The flames and the sight of an intrepid newspaper photographer crawling along a ledge outside the hotel windows to get a picture were fitting climaxes to a wild day.

## Not So Bad

Back among the archives the other day, we came across an issue of this publication (then called *Iron Trade Review*) dated Aug. 9, 1884. We read

this melancholy statement on the front page: "Activity in nearly lines of trade is backward." Activity 68 years later is also backward, but for different reasons. A steel strike has caused our difficulties in 1952, a depression brought distress in 1884.

That 1884 issue featured a story about pig iron producers' plan to bank their furnaces for a month to reduce the pig iron surplus." The article points out that such action is the only course producers can take to check the long decline in price. Now we're trying to figure out a way to check the long rise in price. The issue also carried an editorial chiding American investors for placing their funds in Canadian enterprises while so many worthy domestic companies needed capital. American money today is still going to Canada, accompanied by the applause of U. S. industrial publications because American firms so desperately need Canadian raw materials such as iron ore, oil and nickel.

After we finished reading about the troubles of 1884, we decided 1952 wasn't so bad after all.

## Puzzle Corner

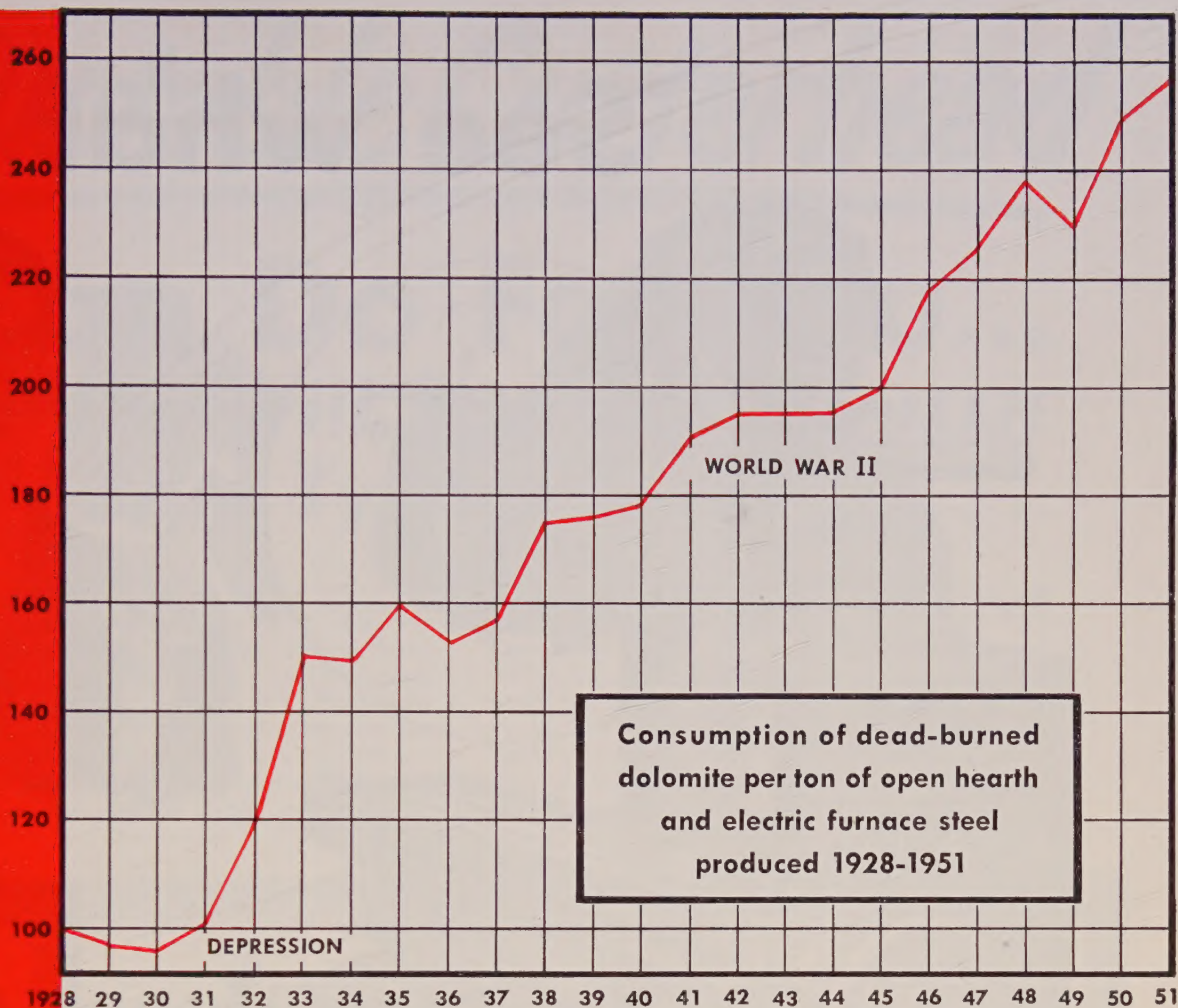
The boy in the July 21 problem had 36 apples when he started. Five in with that answer were M. Beasley of Cobble Brothers Machinery Co., Ralph Pappenheimer of Specialty Device Co., George Frederick of Republic Steel Corp., Charles J. Luhn of Jos. Honhor Co. and Albert Romeo of Denison Engineering Co.

Four men, Peter and Paul and their sons, Tom and Dick, buy books. When their purchases are completed it turns out that each man has paid for each of his books a number of dollars equal to the number of books he has bought.

Each family (father and son) has spent \$65. Peter has bought 1 more book than Tom, and Dick has bought only 1 book. Who is Dick's father?

*Shradli*





## the uptrend in dead-burned dolomite

**T**HIS chart presents a graphic picture of the trend in fettling refractories. Taking as a base period 1928, the first year for which industry figures are available, it indicates the increase in consumption of dead-burned dolomite per ton of steel produced annually through 1951.\*

Dead-burned dolomite was developed as a substitute for Austrian magnesite in 1914. At that time it was generally thought that the product would disappear when European shipments could be resumed. However, product and process research resulted in such improvement in quality and cost that the use of dead-burned dolomite climbed steadily throughout the 1920s. The trend gained impetus as a consequence of efforts of steelmakers through the depression

years to take greater advantage of the economies promised through the increased use of dead-burned dolomite.

Despite the consistently upward trend of 24 years, and the fact that the steel industry utilized slightly over 1 3/4 million tons last year, there have been few times since the late '30s when the supply of dead-burned dolomite was sufficient to permit any major shift to it by users of other fettling materials. Now for the first time in 10 years, with two new kilns in operation at our Ohio Works, there are adequate supplies available for any steel producer who wishes to convert to dead-burned dolomite practice or to improve his present practice through the use of more of this quick-setting, dependable, low-cost refractory.

\*Each year's figure expressed as percentage of base period.



**Basic Refractories Incorporated**

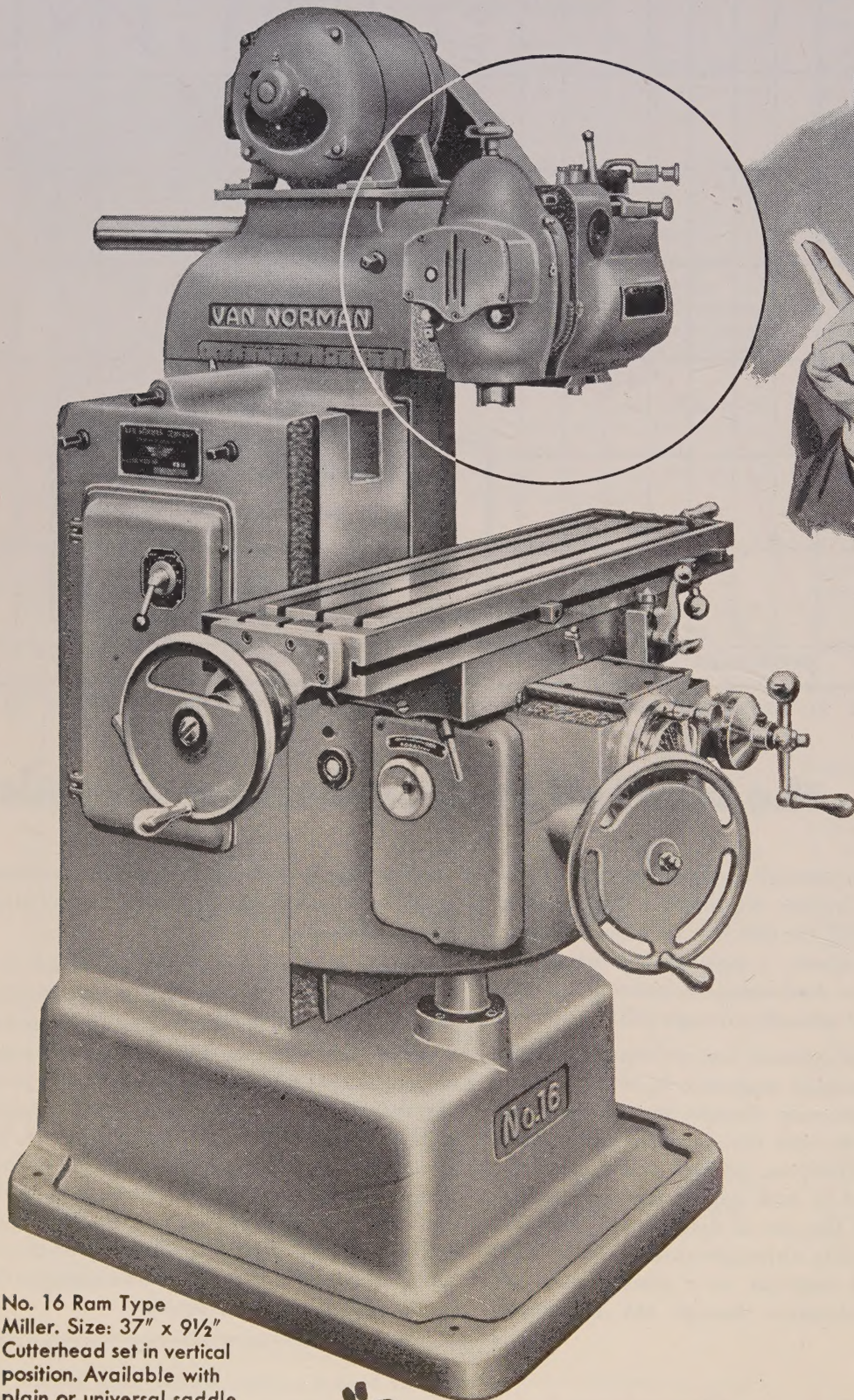
845 HANNA BUILDING, CLEVELAND 15, OHIO

**Write for free booklet "Underlying Steel". This graphic booklet tells the story in words and pictures of granular basic refractories and their role in the production of open hearth steel. Address Dept. 16.**

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Miller. Size: 37" x 9½"  
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position. Available with  
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# Adjustable Cutterhead

## Can Do For You...

## ...and you will buy VAN NORMAN Ram Type Millers"

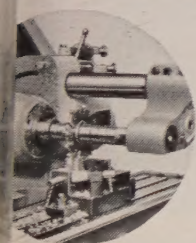
Van Norman Ram Type Millers give you every advantage for reducing milling costs. The adjustable cutterhead, which permits vertical, horizontal or angular milling on one machine, cuts idle machine time by as much as 50%. The movable ram plus the saddle cross feed increases the work range and capacity of these millers... enables you to handle larger work pieces with ease.

There is no waiting for single purpose ma-

chines because practically all milling operations can be accomplished on one Van Norman Ram Type Miller.

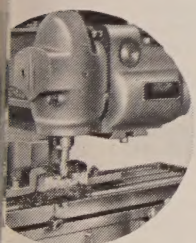
Whether it is for tool room, production line, machine shop, tool and die shop, or laboratory work, Van Norman Ram Type Millers will increase your production and cut costs.

Here's how one Van Norman Ram Type Miller does the work of three single-purpose machines.



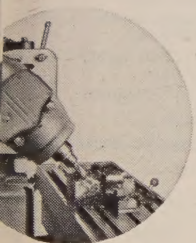
### HORIZONTAL MILLING

With the cutterhead locked in horizontal position, the Van Norman Ram Type Miller is used for horizontal milling operation. Hardened stop set at the factory assures positive 0° setting.



### VERTICAL MILLING

The illustration above shows the Van Norman Ram Type Miller as it is used for a vertical milling operation. Permanently fixed hardened stop permits easy, accurate positioning of the cutterhead at 90°.



### ANGULAR MILLING

Here the adjustable cutterhead is set at 45° angular milling position. Horizontal, vertical or angular milling. All are easily performed on the Van Norman Ram Type Miller.

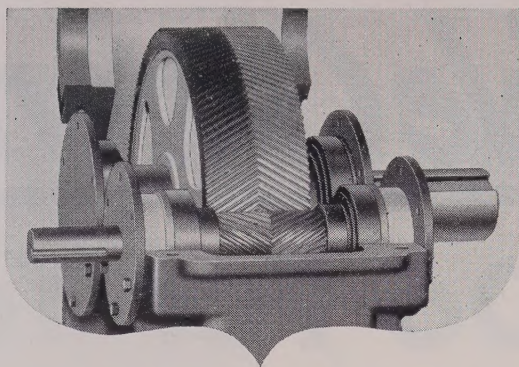
Van Norman Ram Type Millers are available in 6 basic models — No. 12, Table: 37½" x 9⅞"; No. 16 Table: 37" x 9½"; No. 22L Table: 45" x 10"; No. 26 Table: 58" x 13"; No. 36 Table: 64" x 14"; No. 38 Table: 64" x 14".



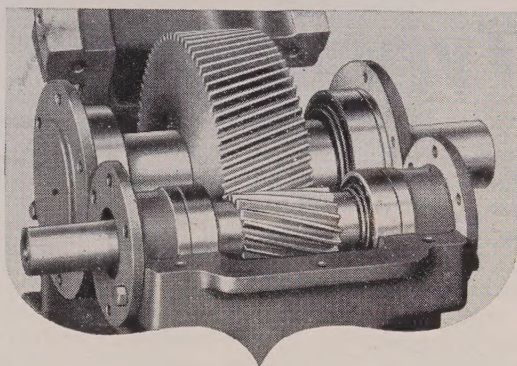
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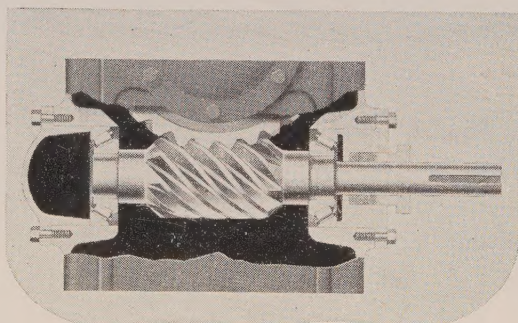




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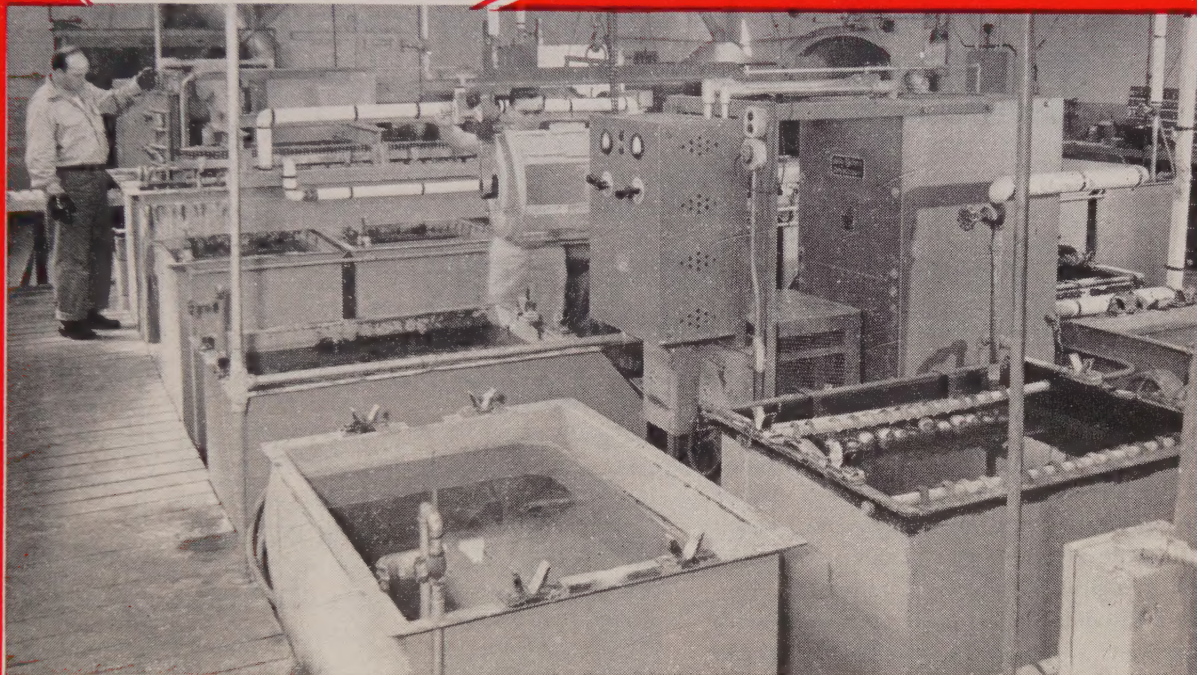
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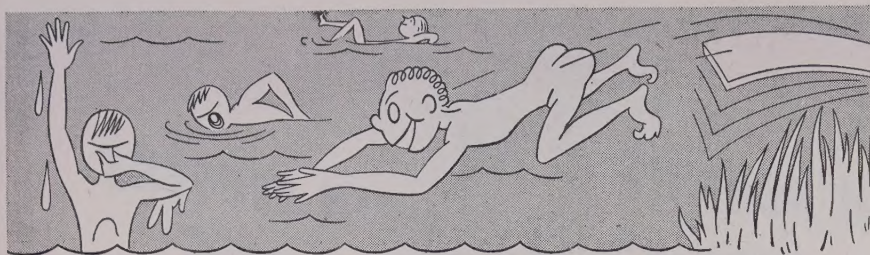
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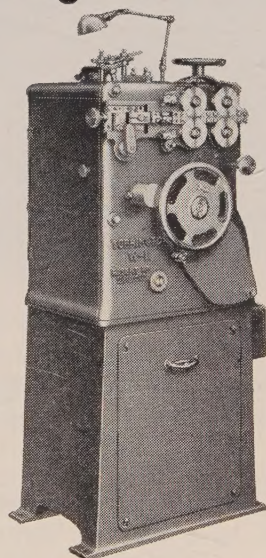
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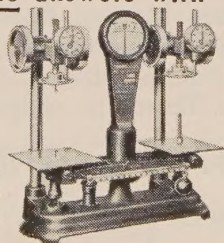


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## **LETTERS**

**TO THE EDITORS**

### **Clarion Call to Duty**

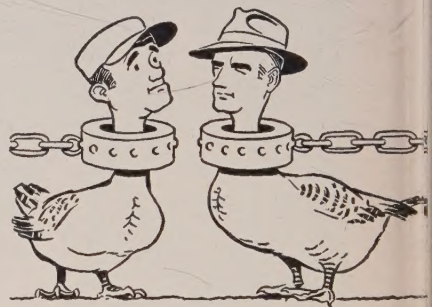
Thanks so much for that very gracious editorial based in part upon my "Creed," (July 14, p. 51). I undertook that book, "A Creed for Free Enterprise," with great misgivings and am keenly sensitive to comment. You encourage me.

Clarence B. Randall  
president  
Inland Steel Co.  
Chicago

### **Is This False Reasoning?**

Would it be possible for the steel companies to insist on a "closed union" in exchange for the "closed shop"?

It seems to me that each steel company could demand that the union in its "closed shop" be prevented from operating in another steel company. One company cannot go into another company's organization and operate (unless they own a controlling interest). So why should the union be allowed to operate in all the companies?



It's a known fact that companies engaged in the pursuit of a single enterprise cannot join forces and thereby create a monopoly. Isn't a union now so organized as to control the manpower in more than one company—now on a product but on the freedom of people who fought many years ago and are still fighting today to prevent the enslaving of their life, liberty and pursuit of happiness.

Verlie Forsyth  
6663 Sprague St.  
Philadelphia

### **No Fast Way to Fast Write-offs**

I am enclosing a copy of a news release on a Certificate of Necessity which our company has just received. No one will know the blood and sweat that goes into a thing like this.

Before we got this certificate, we had to beg, plead, prove, cajole and fly to Washington (3 times). It took nearly 15 months of constant working away, letters, wires, phone calls and trips. The certificate means thousands of dollars in tax savings which we can use to good advantage to build additional steel facilities here—so the trouble was worth it.

Frank V. Seidelhuber Jr.  
president  
Seidelhuber Steel Rolling Mill Corp.  
Seattle

• The announcement read—Seidelhuber Steel Rolling Mill Corp., Seattle, received a Certificate of Necessity from the DPA in the amount of \$1,403,712.







who historically follow the steel industry in their wage policies. If your company has followed steel in the past and you wish to make wage adjustments, submit proof of the historical relationship to WSB and detail your adjustments. If, from the time of filing, you haven't heard from WSB within 30 days, assume that your case is approved. The action is designed to speed up the paperwork on the flood of wage increases expected in the wake of the steel settlement (p. 64). Significantly, there's no speedup in granting price increases for steel users.

## Bitter in Brass

The bitter brass strike in the Naugatuck Valley, Connecticut, rounds out its fifth week. Prospects for settlement late last week weren't bright as the United Auto Workers-CIO concentrated on Scovill Mfg. Co., the biggest of the strikebound firms. Some 10,000 are idle at Scovill, A. H. Wells Co., Waterbury Rolling Mills, Plume & Atwood Co., Bristol Brass Corp. and Seymour Mfg. Co. American Brass Co. employees were still working, though a new contract has not been agreed to.

## Developments in Tin

Bolivia wants a long-term tin contract with the Reconstruction Finance Corp. The main job of the country's new ambassador to the U.S., Victory Andrade, is probably to negotiate terms. Bolivia has accepted the New York price of \$1.215 for spot tin purchases, but wants a higher quotation for deliveries under any long-term agreement. Washington has lifted the ban on the private buying of tin.

## Straws in the Wind

Soon to be prepared will be a nickel scrap order; designed to save nickel, it will require all scrap containing 1/2 per cent or more of nickel to be segregated . . . Westinghouse Electric Corp. sales reached \$681 million in the first half of 1952 . . . General Electric Co. sales reached \$1.2 billion . . . Union Carbide & Carbon Corp.'s Carbide & Carbon Chemicals Co. will build a \$36 million plant in Los Angeles County, Calif., for the manufacture of polyethylene plastics, ethylene glycol and ethylene oxide used as insulating materials in TV sets and for industrial shipping containers.

## What Industry Is Doing

Makers of steel products may wait several weeks—or even months—before they get price relief (p. 61) . . . Price ceilings on steel may be nailed down sometime this week (p. 62) . . . The 3-million ton carryover in military steel orders will not be washed away until early 1953 (p. 63) . . . Small companies will contend with a flood of labor demands patterned after the steelworkers' (p. 64) . . . Iron ore expansion will be lured toward a 147 million gross-ton goal in 1955 by rapid amortization (p. 65) . . . Home laundry makers say more births in the '40s will bring more sales in the '60s (p. 73) . . . Recovery pattern from the steel strike takes shape (p. 79).





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The nature of our business necessitates both speed and accuracy in multiple cutting to exact lengths required by customers. When we decided recently to install three more 9A MARVEL Heavy Duty Automatic Hack Saw Machines, it was with full knowledge of their efficiency.

We can assure you of our entire satisfaction with their operation and regard them as valuable additions to our equipment.

Yours very truly,  
E. D. GIBERSON & COMPANY, INC.

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LARGEST STOCKS OF SEAMLESS STEEL PIPE AND TUBING — SEAMLESS STEEL PIPE — 1/2" TO 36" DIA. STEEL PIPE AND TUBING

## Another Tubing Warehouse "Goes MARVEL"

Warehouses that are not equipped with proper sawing machines find that the cutting of steel tubing (especially the stainless types) is a difficult and costly job. But E. D. Giberson & Company, New York, have cut off millions of feet of all types and sizes of steel tubing to accurate lengths, economically and without difficulty, due to the fact that they have long been properly equipped with MARVEL SAWS. And because they have found MARVEL SAWS so trouble-free, so reliable, so economical to operate and so universally suited to all their cutting-off jobs, they have recently added this row of three new MARVEL No. 9A Automatic Hack Saws. With this additional equipment, they have expanded their facilities and can more promptly serve their fast-growing list of satisfied customers with steel tubing of all types and sizes, "cut to customer's specified lengths."

The local MARVEL Field Engineer will be glad to study your range of cutting-off work—whether it be in pipe, structural shapes, bars, or the toughest and largest alloy billets—and will then make recommendations on how you can improve your cutting-off operations to reduce costs and increase man-hour output.

Just write us on your letterhead: "Without cost or obligation on our part, send your local Field Engineer to look over our cutting-off operations."



**ARMSTRONG-BLUM MFG. COMPANY**

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"The Hack Saw People"

CHICAGO 30, ILLINOIS



# "SH-RIP"

## A BRAND NEW NAME IN STEEL

TO HELP YOU DEFINE CERTAIN FLAT ROLLED PRODUCTS MORE EXACTLY

### SHEET STEEL and STEEL STRIP

Each has its own best uses. But to substitute one for the other indiscriminately may risk misapplying different grades and qualities of steel at the expense of disappointments in fabrication and service.

Yet buyers and sellers often confuse the terms. They refer to almost any *strip-sized* sheet steel as "strip" . . . as though the mere circumstance of width made any difference in the characteristics of the original steel.

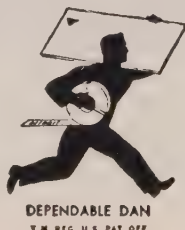
### ONCE SHEET, ALWAYS SHEET

Sheet steel, no matter how narrowly cut, in coils or otherwise, is still sheet steel. Let's not change the name.

Should it ever become expedient to call such material by another name, then we suggest

## SH-RIP

—but never "strip"!



DEPENDABLE DAN  
U.S. REG. U.S. PAT. OFF.

Steel strip may offer you certain very definite advantages either in reducing your overall fabricating costs or in increasing the sales value of your finished product. May we talk with you about the possibilities?

*For helpful action call our nearest plant or office*

### DETROIT STEEL CORPORATION

#### PRODUCERS OF

Coke and Coal Chemicals • Pig Iron • Ingots  
Slabs • Sheet Bars • Billets • Wire Rods  
Manufacturers' Wire • Merchant Wire Products  
Welded Fabric • Cold Rolled Steel Strip

**GENERAL OFFICES  
DETROIT 9, MICHIGAN**

### RELIANCE STEEL DIVISION

Processors and Distributors JOB-FITTED Sheet and Strip Steel

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ROCHESTER 4, N. Y., 5 St. Paul St., Baker 1061  
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### RELIANCE *Job-Fitted* PRODUCTS

### COLD ROLLED STEEL STRIP and FLAT WIRE

Coils . . . Cut Lengths . . . All Tempers

#### SHEETS

COLD ROLLED . . . HOT ROLLED . . . H. R. PICKLED . . . LONG TERNE . . . GALVANIZED  
Standard and Production Sizes or Cut to Actual Working Dimensions

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August 4, 1952

## Costly Lesson

Persons who study the terms upon which the steel strike was settled must conclude that there was little excuse for the work stoppage in the first place and absolutely no justification for its prolongation beyond a week or two.

Three major issues were at stake: 1. Wage increase. 2. An increase in prices to compensate in part for higher employment costs. 3. The closed union shop.

The No. 1 issue was resolved early in the dispute. The No. 2 issue was made difficult by the refusal of Price Administrator Ellis Arnall to go beyond a token increase. It is significant that in order to bring about a settlement the government administration had to over-rule OPS and to go back to a steel price increase similar to that proposed by Defense Mobilizer Charles E. Wilson. It is ironic that he had to leave his job because he was right when all others in government were wrong. The third issue, the closed union shop, was compromised, but heavily in favor of the position taken by the steel companies.

If there is a lesson to be learned from this most costly and most devastating of all strikes it is that political maneuvering as it is practiced at precinct levels is no substitute for the collective bargaining procedure spelled out first in the Wagner Act and later in the Taft-Hartley Act. The politically-rigged Wage Stabilization Board recommendations, President Truman's bare-faced deal with Mr. Murray, the unprecedented seizure of the steel industry, the President's refusal to abide by the requests of both houses of Congress to employ the machinery made available to him by law—all were horrible examples of how not to settle a labor dispute.

The nation can profit from this costly lesson if the people will insist that the President of the United States shall abide by Section 3, Article II, of the Constitution which provides that he "shall take care that the laws be faithfully executed."

Fortunately each of the candidates recently nominated for the office of President has a higher regard for the law than Mr. Truman demonstrated in the needless steel strike.

EDITOR-IN-CHIEF

**HEART NOT IN OPS JOB:** A particularly provoking aftermath of the steel strike is the confusion in prices, not only of steel products but of the thousand and one fabricated or

manufactured items in which the price of steel is a dominant factor. The Office of Price Stabilization, headed by Ellis Arnall, is responsible for issuing orders defining these prices. Mr. Ar-



nall's position on the price to be allowed steel companies to offset higher wages was over-ruled by his superiors. Consequently his office may find it difficult to sympathize with the really serious plight of producers and manufacturers who are anxious to know how they are to bill their customers.

Current advice from OPS is that steel users must use their old prices until the regulations can be amended. This, of course, is a wholly unsatisfactory procedure and the situation is made more difficult by the fact that OPS hasn't much heart for the awkward task that has been thrust upon it.

\* \* \*

**DIFFICULT DAYS AHEAD:** Effect of the steel strike will be reflected in business statistics for many months to come. By the end of 1952 the Federal Reserve Board's industrial production index will have risen from about 190 per cent of the 1935-39 average in July to about 225 (p. 79). This is near the level that would have been expected if the strike had not occurred.

However, not all recovery patterns will follow the FRB index. Defense and related operations probably will make up strike losses by the year end. This will be at the expense of civilian operations. Unfortunately many metalworking companies will not regain their stride until well into 1953. The scars of the strike will be visible for a long, long time.

\* \* \*

**HOME LAUNDRY MARKET:** Young mothers of the present generation are thoroughly sold on the merit of home laundry appliances. At the meeting of the American Home Laundry Manufacturers' Association at Mackinac Island (p. 73) it was reported that sales of household washers, dryers and ironers accounted for more than 37 per cent of unit volume and in excess of 31 per cent of the dollar volume of all major electrical appliances sold in 1951. Included in major appliances are refrigerators, electric ranges, water heaters and food freezers.

It is estimated that 2 million ironers, 6.5 million dryers and 17.5 million household washers will be sold in the next five years. Also, the sharp increase in the birth rate which began in 1941 will result in a marked bulge in marriages in the sixties and early seventies. This will

provide an attractive market a decade or more from now—a fact that has real significance for the metalworking industries.

\* \* \*

**DUST NUISANCE COSTLY:** With few exceptions, companies operating steelworks in close proximity to residential areas face the extremely difficult and expensive problem of reducing the amount of dust in gases exhausted from the stacks of open hearth furnaces. Numerous steelmakers are going to great lengths to appease public complaint against the dust nuisance.

One of these is Jones & Laughlin Steel Corp. which has been running a series of pilot plant tests in an effort to find a practical, reasonable solution of the dust problem in connection with its 11 new 250-ton open hearth furnaces at its Pittsburgh works. In these tests (p. 105), which covered a wide range of dust arresting equipment, it was found that the "only method that would do this job would be a high-voltage electrostatic precipitator." The cost is high and the small yield of flue dust would require a sintering operation.

In short, the problem of dust from open hearth stacks awaits further research and development.

\* \* \*

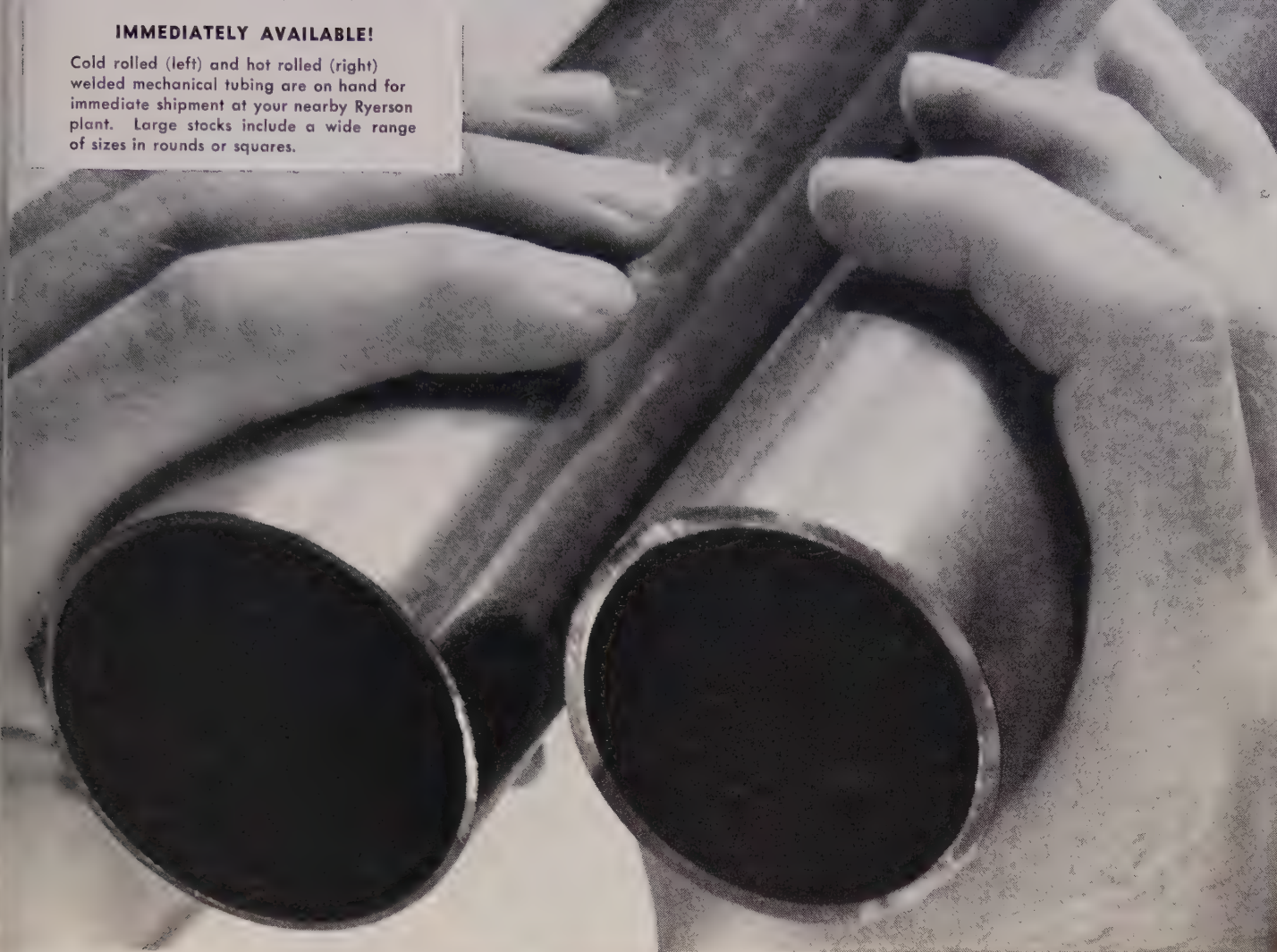
**TREADMILL HUMS AGAIN:** As freely predicted, inflationary aspects of the steel strike settlement will become apparent immediately. The price increase for steel products, which averages about 4.7 per cent or \$5.20 per ton, in itself will cause an average increase of \$8.84 in the cost of an automobile, 52 cents for an electric refrigerator, \$5.41 for a tractor and \$22.05 for a moderate sized home.

However, this is only one element of the inflationary spurt that is being touched off by the steel settlement. Unions and employers in many branches of the metalworking industries other than primary ferrous metal producers now are negotiating new contracts. In many instances, the settlements—as was the case in the Aluminum Co. of America—will call for wage increases, fringe benefits and other provisions closely paralleling the steel pattern. The inflationary treadmill is speeding up and many persons will have to run faster to keep even with the board.



#### IMMEDIATELY AVAILABLE!

Cold rolled (left) and hot rolled (right) welded mechanical tubing are on hand for immediate shipment at your nearby Ryerson plant. Large stocks include a wide range of sizes in rounds or squares.



## Doubled-Barreled Solution to Many Tubing Problems

Two good answers to many of the problems facing tubing users today may be found in the use of welded mechanical tubing—hot or cold rolled. With supplies of seamless tubing currently limited, except in small sizes, welded tubes are finding wider acceptance as an entirely satisfactory alternate.

Both hot and cold rolled welded mechanical tubing are on hand today at your nearby Ryerson plant. You can get quick shipment on either one in a wide range of round and square sizes. And you can be sure that the tubing you buy from Ryerson is of uniform high quality.

For example, the hot rolled has an unusually bright finish for this type of tubing because the strip from which it is made has been pickled.

This gives a surface that takes paint well without any preparation.

Ryerson tubing specialists will gladly work with you on any tubing problem. So call us for welded tubing, now in good supply, as well as for other tubing requirements.

#### PRINCIPAL PRODUCTS

**CARBON STEEL BARS**—Hot rolled and cold finished

**STRUCTURALS**—Channels, angles, beams, etc.

**PLATES**—Many types including Inland 4-Way Safety Plate

**SHEETS**—Hot and cold rolled, many types and coatings

**TUBING**—Seamless and welded, mechanical and boiler tubes

**ALLOYS**—Hot rolled, cold finished, heat treated.

**STAINLESS**—Allegheny bars, plates, sheets, tubes, etc.

**MACHINERY & TOOLS**—For metal fabrication

# RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT  
PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE





When a steel order goes through a mill, customers have a big advantage when everyone concerned with production decisions is handy and available. Inland's size and location mean that prompt personal attention can be given to every customer's problem as it comes up.



## **INLAND STEEL COMPANY**

38 South Dearborn Street, Chicago 3, Illinois

SALES OFFICES: Chicago, Milwaukee, St. Paul, Davenport,  
Kansas City, St. Louis, Indianapolis, Detroit, New York



## Steel Increase of \$5.20 per Ton Means Cost Hikes in Steel Alone on . . .



**HOUSES—UP \$22.05**



**REFRIGERATORS—UP \$.52**



**AUTOS—UP \$8.84**



**TRACTORS—UP \$5.41**

## Long Wait for Price Relief

**Steelmakers will get prompt increases, but users of the metal will have to wait until OPS gets around to amending individual price rules. No interim help is likely**

YOU WILL have to wait several weeks — maybe months — before OPS will get around to amending the ceiling price regulations for steel users so the steel price hike can be reflected in metal products.

As of late last week, OPS didn't plan to permit any open-invoice scheme or other device that would enable steel users at a later date to add the increase on products shipped between the steel boost and price rule amendments.

**Fears**—"It may be months before Washington takes action," complains one maker of forgings. "We may never get an increase at all," points out a stamping manufacturer. He has in mind the statements of early last week by Economic Stabilizer Robert L. Putnam

when he said that President Truman would back him in an effort to "isolate" the price rise in steel.

A spot check by STEEL reveals that metalworking companies believe they must pass along most of the steel price increase in order to stay in business. Not so positive are auto makers. There, competitive considerations—which are not yet clear—will dictate the decision. Appliance manufacturers and other producers of finished civilian goods are similarly undecided. A stove company executive doubts if any price changes will be possible in his line before the beginning of next year, even if OPS permits them before then.

**Anxious**—But manufacturers of finished industrial products and

components of all types want quicker action. "The steel strike lasted eight weeks," points out a castings manufacturer. "A child could have seen a price hike coming months ago in iron and steel. Why didn't OPS foresee that, set up the machinery weeks ago to pass along the increase and have a formula ready that could give us our boosts quickly once the steel price hike became known?" Steel users are also worried about whether the new amendments to their pricing regulations will make allowance for new wage hikes many of them believe are inevitable now that the steelworkers have made gains. (For analysis of that situation, see page 63).

OPS minimizes the seriousness of the delay. It says it can't possibly make a decision on the "pass through" operation until it has settled on the steel increases. It says some weeks on the average will elapse before the higher priced steel starts to go into manufactured goods. STEEL's spot check



## EMPTY ORE YARDS



Normally this huge Republic Steel Corp. stockpiling area would be filling rapidly to build an ore reserve for use next winter when ice halts Great Lakes navigation.

But the yard is nearly empty because Lake Superior iron miners conducted a 53-day sympathy strike. Significance: Possible mill shutdowns next March or April.

reveals that frequently such is not true. Many companies now have little or no steel. When they start to manufacture again, part or all of the steel in their product will have carried the higher price tag.

**Lengthy Conferences**—The procedures to get amendments to price regulations will be time-consuming. Present plans call for intensive consultation with the industry involved, and even OPS admits the process will require several weeks.

The regulations affecting metalworking include CPR 1 for autos; CPR 22 for general manufacturing; CPR 30 for machinery; CPR 60 for castings and CPR 156 for fabricated structural steel, plus the general ceiling rule.

### Steel Prices on Rise

**NEW CEILINGS** on steel prices may be nailed down by OPS sometime this week. Until then, the steel industry is permitted to ship on open orders—price to be filled in later—under special Steel Order No. 1. Chances are good, not certain, that the Office of Price Sta-

bilization will follow the formula suggested by industry men which, as of late last week, called for an average increase of about 4.7 per cent over the old ceilings.

Industry men based their formula for carbon grades on dollars and cents increase per man-hour times the man-hour production for each product. They suggested 26 cents an hour increase per man-hour. OPS recognizes 20 man-hours for the production of a ton of an average steel product; thus, a \$5.20 a ton increase as an average price hike.

Ingots might go up \$2.00 a ton; hot rolled sheets, \$3.50; plates, \$4.00; structural shapes, \$4.00; bars, \$5.00; cold rolled strip, low carbon, \$9.00; cold rolled strip, high carbon, \$17.00; pressure tubing, \$11.00; carbon tool steel and drill rods, \$13.50; blooms and billets for carbon seamless pipe and tube, \$3.00; wire rod, \$4.50; tube rounds, \$5.50; standard rails, \$3.50; concrete reinforcing bars, \$5.00; cold finished bars, \$7.50; hot rolled strip, \$4.50; cold rolled

sheets, \$4.50; standard pipe, \$6.50; mechanical tubing, \$10.50; drawn wire, \$7.50; nails, staples and brads, \$9.00; barbed and twisted wire, \$8.00; wire fence, \$9.00 and bale ties, \$9.00.

The problem of determining how the increase of 4.7 per cent should be averaged over alloy products remained last week to be solved.

Also, new ceilings for coke, iron ore, pig iron and scrap had not been considered. Iron ore producers have already made application for a price increase and pig iron producers are expected to follow suit. No action was immediately apparent on coke and scrap.

### Refractories Adequate

**REFRACTORIES** apparently won't be the plug in getting back to full steel production. While the extent of strike-caused damage at steel plants has not yet been fully ascertained, refractory manufacturers think supplies adequate.

As the first week of returning to production ended and no flood of refractory orders materialized



some refractory makers who worked through the strike piling up bricks were even uneasy about inventory bulk.

**Still Uncertain**—Probably they have no cause for alarm. Furnaces are being placed in operation and are working, but no one knows how soon they will break down. Un-

## CRUMBLING BRICK

doubtedly some open hearth roofs have fallen or will—the questions are how many and when.

Known strike-damage was lighter than was expected in many cases.

## How Steel Will Be Distributed

**The 3-million ton carryover in military steel orders won't be washed out until early 1953. Increasing amounts of the metal will go for civilian output as the year progresses**

NATIONAL Production Authority and Defense Production Administration have bought most of the recommendations of the Steel Products Industry Advisory Committee in an emergency package of regulations designed to spread the supply of steel.

Effects of the strike spread last week even though the nation's mills managed to produce about 976,000 tons of ingots, 47 per cent of capacity. DPA Administrator Henry H. Fowler says up to 4 million workers face unemployment as a result of the eight-week walkout. (For an analysis of the economic implications, see p. 79.)

**Spelled Out**—DPA will make no attempt to wash out the 3-million ton carryover in unfilled military steel orders before the first quarter of 1953. Fourth quarter advance allotments of steel amounting on the average to 80 per cent of third quarter for civilian consumers will be allowed to stand. But the first quarter, 1953, allotments which were issued on the basis of 60 per cent of the third quarter figures, may have to be cut.

The military allotments for fourth quarter were on the basis of 100 per cent of this quarter. Mr. Fowler hopes that military orders can be caught up before the end of the year. Late last week, military liaison men had gone into 20 steel plants to help expedite matters. The military is also authorizing double and multiple shift operations in steel plants where it especially needs an end-product. It will pay the bill on that, and also

on conversion work that may become necessary.

**Set-Asides**—While third quarter and earlier military allotments will have a priority through Nov. 30, the fourth quarter military program will be fed through set-asides. The objective is to avoid concentration of military orders on a few mills. Non-military fourth quarter orders may be filled up to Feb. 28, 1953.

The fourth quarter set-asides will work this way: Through Nov. 30, 1952, unfilled orders for second and third quarter deliveries must be filled first. Then come the orders of the steel distributors and converters. Then come military set-asides which are figured on the basis of a percentage of scheduled production for each form and shape of steel. Finally comes fourth quarter orders of civilian manufacturers and construction.

**Nod to Jobbers** — Warehouses will get emergency rations. They can receive up to 120 per cent of base period receipts, compared with 100 per cent under former rules. Until Aug. 7 they can ship hot-rolled bars, cold-finished bars, electrical sheet and strip, structural shapes, tubing, sheared plate and hot and cold-rolled sheet and strip only against orders for the military, atomic energy, machine tools or components needed for any of those programs.

Present distribution planning is predicated on the assumption that mills will have enough ore next winter. That may not be the case. Lake shipments this year are some 15 million gross tons below what



Nearly a third of U.S. Steel Co.'s Chicago open hearths were strike-damaged. Result: Delay in production

they were at this same time last year. That means trouble next year. If we have an early freeze this year, we're in trouble, even with the expanding capacity of the lake fleet. If rumored labor trouble among the crews materializes, we're in trouble. If the "if's" don't bob up, we'll probably squeeze through. Because of the threatened shortage in ore, the scrap market, lackadaisical for some weeks, is perking up.

**Scorecard** — The effects of the steel strike are legion; getting little notice is the effect on various expansion programs. For example, aluminum capacity scheduled to come into operation in September will be delayed until November or later. The 1952 goal of an extra 9 million kw in our power capacity and the 1953 goal of 12 million kw can't be reached. Oil refinery and pipeline construction will be set back a full quarter. The steel strike means that some 300 diesel locomotives and 20,000 freight cars won't be made.

Despite all those individual problems, the control agencies claim



they will stick to their promise not to provide special assistance. The advantages of special help are offset by confusion when special orders go to the mills. The lone exception to hands-off rule will be the tin plate used by the canners.

## Steel Settlement Terms

ECONOMIC TERMS of the steel settlement were signed by Bethlehem Steel Co., Inland Steel Co., Jones and Laughlin Steel Corp., Republic Steel Corp., U. S. Steel Co. and The Youngstown Sheet & Tube Co. Agreements with other steel firms were expected to follow the same pattern as negotiations continued late last week.

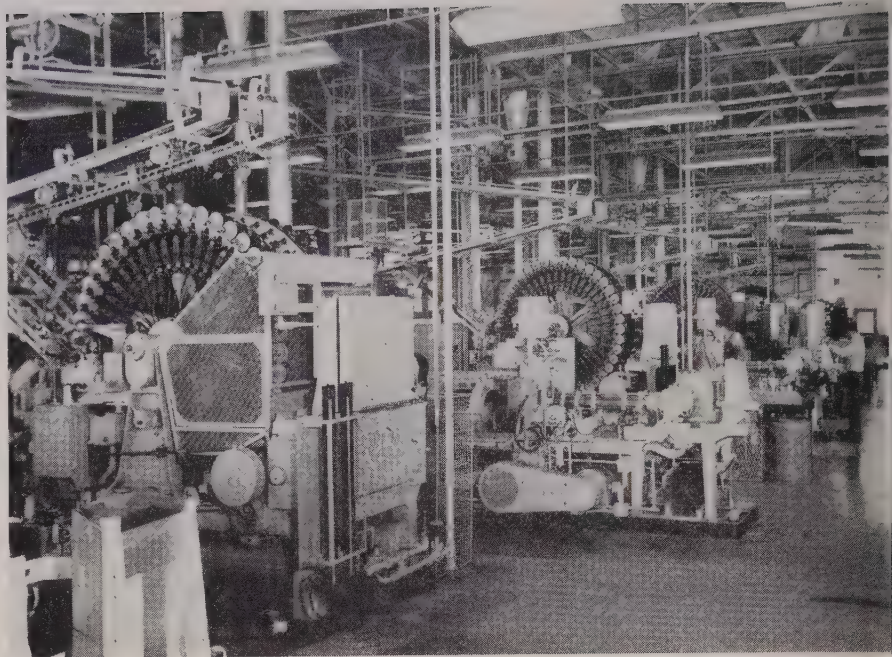
The new agreements will run to June 30, 1954, reopenable by either party as of June 30, 1953, on the subject of general adjustment of wage rates only; with the right to strike or lockout after June 30, 1953, upon appropriate notice.

The cost of the terms: Wage increase, 16 cents; paid holidays, 3.3 cents, vacations, 0.6 cents; shift differential, 1.2 cents—total cost, 21.1 cents.

**Roadblock**—Settlement on the economic terms was possible more than a month ago, but the roadblock to settlement was the union demand for compulsory membership. The companies won on this basic issue. Under terms of the new agreement, no employee is required to join the union in order to hold his job.

New employees, when hired, will sign application cards which will not become effective if they are revoked by the employees during the last 15 days of the 30-day period following their employment. There is also a withdrawal privilege giving all union members the right to drop their membership during the last 15 days of the new contract.

**Management Issues**—Each company and the union will complete negotiations as to all other contract (right to manage) provisions and as to the detailed application of the above items during the months ahead. The memorandum of settlement was drawn up to end the strike, but actual drafting of the contract with the individual firms bids fair to be a lengthy and hard-fought process.



## Tin Cans: The Need of the Hour

Whether the canned food supply will be damaged seriously by the eight-week steelworkers' strike is yet to be seen. But the NPA, Association of American Railroads, Defense Transportation Administration, tin plate producers and manufacturers of tin cans are engaged in an effort to save the current crop of perishable foods from spoiling for lack of cans. NPA requested the co-operation of the above groups and ordered all available tin plate to be channeled into tin can production. The cans above are being tested in American Can Co.'s new plant in Stockton, Calif. which has a capacity of 350 million cans a year.

## Leaking Wage Dike: No Finger Lifted

"CATCHING UP" isn't going to stick as a label for the steel wage boost. Small firms can expect a flood of demands paralleling the pattern of the steelworkers' wage settlement as unions build pressure on the Wage Stabilization Board. When the unions have sold enough employers on the idea and enough applications have been filed, the flood of wage hikes will be turned loose—sometime before November.

The administration isn't going to cut its throat by taking a stand against labor, and it's probably going to time the windfall to give an Indian summer impression of prosperity that will warm the voters' hearts until after the election.

**Leaking at the Seams**—The aluminum settlement is the first trickle of the coming deluge, but the real pressure is going to be on smaller companies.

Excepting differences peculiar to individual companies, contracts with fabricators will be substantial—carbon copies of the basic steel

agreements except that most contracts won't be retroactive but effective as of the date of application. (For the terms of settlement see preceding story.) Unions with escalator clauses are reportedly dissatisfied with the set-up where the cost of living index drops and will push for retainment of granted wage boosts. Small shops with no unions will be forced to keep their scale above that of the unions and most are already offering the fringe benefits in their bid to keep workers.

And that means another round of wage hikes, probably partially compensating price hikes and all most certainly narrower profit margins.

**Resignation**—Nobody is making a move to put his finger into the dike. The pattern of labor pressure, prudish government acquiescence and industry resignation is off again. Even if a few firms try to resist it, they'll be vilified by labor and chastised by government.



# IRON ORE: Present and Projected Productive Capacity (Gross Tons)

ORIGIN	1950 Deliveries by Sources	1951 Deliveries by Sources	1955 Productive Capacity Goal
<b>DOMESTIC TOTAL</b>	<b>98,060,000</b>	<b>117,037,607</b>	<b>124,000,000</b>
Lake Superior Deposits	79,600,000	94,537,607	98,700,000
Open-pit, direct-shipping ore	41,600,000	54,000,000	51,900,000
Gravity concentrates from			
open-pit mines	19,800,000	21,000,000	26,000,000
Ore from underground mines	18,200,000	19,400,000	20,000,000
Taconite concentrates	60,000	137,607	800,000
Other Domestic Sources	18,400,000	22,500,000	25,300,000
Southeastern mines	7,500,000	8,400,000	8,500,000
Northeastern mines	4,500,000	5,100,000	6,000,000
Western mines	5,800,000	8,400,000	10,000,000
Pyrite sinter, other			
iron-bearing residues	600,000	600,000	800,000
<b>IMPORTS</b>	<b>8,200,000</b>	<b>10,100,000</b>	<b>23,000,000</b>
Canada-Steep Rock			
Labrador-Quebec	1,900,000	2,000,000	5,000,000
Michipicoten-Marmora, other			
Canadian			2,000,000
Chile	2,500,000	2,800,000	1,000,000
Sweden	2,000,000	2,500,000	2,000,000
Africa	900,000	1,000,000	3,000,000
Venezuela		600,000	5,000,000
Brazil	700,000	1,000,000	1,000,000
All others	200,000	200,000	1,000,000
<b>TOTAL DOMESTIC AND FOREIGN</b>	<b>106,260,000</b>	<b>127,137,607</b>	<b>147,000,000</b>

## Iron Ore Output Backs Mounting Needs

Rapid amortization is the lure offered by DPA and DMPA as expansion progresses to yield 147 million gross tons of iron ore in 1955. The goal should meet expanded steel needs

IRON ORE requirements of the expanded iron and steel industry will be fully met for the long run. In putting together an expansion program to yield 147 million gross tons of ore in 1955, government planners (Defense Production Administration and Defense Materials Procurement Agency) will have certified some 128 applications for rapid amortization involving a total of about \$1 billion in depreciable assets. Carrying out of this program, they say, will insure against any foreseeable shortage.

To reach the goal, they figure shipments of iron ore from domestic sources will have to be increased from 98 million gross tons in 1950 to 124 million in 1955, while imports will have to be increased from 8.2 million gross tons in 1950 to 23 million in 1955.

**Deceiving Figures**—Actually the expansion goal is considerably larger than indicated by the above figures, for the mines that shipped 98 million tons in 1950 will be shipping only about 90 million tons in 1955. Because of such exhaustion

the expansion in domestic iron ore production will have to be about 34 million tons, or 37 per cent.

To bring about such an expansion program, the oft-mooted proposal to conserve the remainder of our high-grade, open-pit, direct-shipping ore for national emergency insurance has had to be discarded once and for all. To meet the goal of 147 million gross tons in 1955, it will be absolutely necessary to keep on depleting our reserves of open-pit ore for there are no substitutes presently available.

**Attractive Bait** — The planners are using the fast-amortization lure to encourage production of concentrates from our huge reserves of taconite and Jasper iron-bearing formations in Minnesota. Whereas production of taconite concentrate was 137,607 gross tons in 1951, it is to be 800,000 gross tons in 1955. And on June 19, the DPA approved an application for bringing Jasper concentrate into the picture for the first time. Cleveland Cliffs Mining Co. and Ford Motor Co., acting in partnership, are to build a plant

at Humboldt, Mich., which will use the new oil-froth floatation process to concentrate the iron-bearing constituents of the Jasper ore. As taconite, this concentrate then will be pelletized to make it suitable for blast furnace use. The Humboldt plant is to go into operation in 1953, and is expected to attain an output of 600,000 gross tons of Jasper pellets by 1958. Now the DPA is considering application for a similar plant to be constructed by the Hanna interests.

To meet the imperative need for more imports, DPA approved three applications for fast amortization of foreign iron ore developments—Bethlehem's Marmora property in Canada, Orinoco Mining Co. of Venezuela and Iron Ore Co. of Canada. Under current expansion programs, the United States is to get about 8 million gross tons more from Canada in 1955 than in 1951—and about 4.4 million gross tons more from Venezuela. Biggest potential source in Canada is the new Labrador development from which some 5 million gross tons ought to be imported annually by 1955.

**Seaway Boost?** — If the St. Lawrence Seaway becomes available, it will be feasible to import on the order of 30 million gross tons of Labrador ore annually.



## SELECTED DEFENSE CONTRACTS IN EXCESS OF \$250,000

PRODUCT	CONTRACTOR
Lathes, Turret	King Machine Tool Div., American Steel Foundries, Cincinnati
Machines, Boring & Milling	Bullard Co., Bridgeport, Conn.
Machines, Grinding	Landis Tool Co., Waynesboro, Pa.
Presses, Various	Danly Machine Specialties Inc., Chicago
Trucks, Fork-Lift	Yale & Towne Mfg. Co., New York
Aircraft Parts	Beech Aircraft Corp., Wichita, Kans.
Carburetors	Bendix Aviation Corp., Detroit
Aircraft Pumps	Thompson Products Inc., Cleveland
Shells, 81 mm	Doehler Metal Furniture Co., New York
Shells, Fin	Groist Mfg. Co., New Haven, Conn.
Cartridge Balls (3 Contracts)	Remington Arms Co., Inc., Bridgeport, Conn.
Cartridge Cases	Chase Brass & Copper Co., Inc., Waterbury, Conn.
Radio Sets	Motorola Inc., Chicago
Telephone Terminals	Western Electric Co., New York

## Procurement Barrel Is Far From Empty

DURING the first 11 months of fiscal 1952 (July, 1951-May, 1952) the Defense Department obligated \$36.5 billion for procurement of major equipment supplies, military construction, expansion of production facilities and military aid to foreign countries.

Of this total, hard goods accounted for \$30.5 billion, soft goods for \$3.9 billion and construction for \$2.1 billion. Procurement for the Mutual Security Assistance Program accounts for \$2.9 billion of the \$30.5 billion obligated for hard goods.

On June 1, a total of \$14.5 billion was still available for obligation by the Defense Department, with \$11.0 billion available for hard goods, \$0.2 billion for soft goods and \$3.7 billion for construction.

Since the attack on Korea, \$118.6 billion in obligational authority has been given to the Defense Department. Of this total, \$87.0 billion was made available for construction and procurement, with \$71.3 billion available for hard goods, \$8.1 billion for soft goods, and \$7.6 billion for construction. Of this \$118.6 billion, the Defense Department has already obligated \$101.2 billion, with \$72.1 billion for procurement and construction. Of this \$72.1 billion, \$60.3 billion was obligated for hard goods, \$7.9 billion for soft goods and \$3.9 billion for construction.

### Apex Builds Alloy Smelter

Apex Smelting Co., Chicago, is about to build a West Coast smelter to employ a process, developed in co-operation with the Bureau of Mines station at Albany, Ore., for utilizing selected clays for the production of aluminum-silicon alloys.

The Albany station has produced and shipped to the Apex company's Cleveland plant some 35,000 to 40,000 pounds of "master base metal" which has been converted at Cleveland into aluminum-silicon alloys of specific compositions.

Work continues on the program at Albany, both to improve the

### Add One Part "A"—

Long a connoisseur of sales tactics, Westinghouse Electric Corp. comes up with a new gimmick. Known as the "Dare to Compare" merchandising program, it will involve two parts: First, a blindfold "strip-down test" in which the salesman dismantles an entire motor starter assembly while blindfolded, meanwhile pointing out the design features that make the feat possible; and second, an "add-a-part" program in which the customer will receive eight mailing pieces, each containing a component of the starter assembly with comments on its design and instructions for assembly.

smelting technique to reduce costs, and to learn more about available clays to be charged into the electric furnace. The master base metal is used by the Apex company to produce casting alloys.

### Titanium Supply To Triple

An agreement between Defense Materials Procurement Agency, Washington, and E. I. du Pont de Nemours & Co., Wilmington, Del., calls for production of an additional 13,500 net tons of titanium sponge over a period of five years. This is three times the company's present plant capacity. The government agrees to advance the company up to \$14.7 million to expand titanium producing facilities at Newport, Edge Moor, Del.

## New Items: New Price Formula

Nearly 25,000 durable goods manufacturers are affected by a new OPS formula, CPR 161, which must be used to determine ceiling prices of all new commodities introduced after Sept. 24, 1952. The formula relies largely on comparison pricing; ceiling prices of new commodities are established by comparing them with similar commodities for which ceilings had been established after the pre-Korean base period.

Among the items covered by CPR 161 are the following metal-working products: Household and electrical appliances, business equipment, hardware, agricultural implements and garden hand tools, kitchen equipment, portable out-board motors, plated ware, electric lamp bulbs and tubes, radio, television and phonographic equipment, sporting goods, wheel goods, and industrial safety equipment.

Separate formulas cover products with minor changes, major changes, and products so different from anything else on the market that no comparison commodity can be found.

### Small Firms Get Wage Controls

Nine categories of small business, formerly exempted from wage and salary controls, have been designated within the province of the new Wage Stabilization Board by Roger L. Putnam, DPA administrator. Reason: Their continued exemption would have an unstabilizing effect on the over-all economy.

The Defense Production Act defines small business as one employing eight or fewer persons.

Small business categories now being put under wage stabilization are: Firms in which compensation is established on an industry, association or area basis; building and construction firms; for-hire and contract truckers; tool and die shops, including die sinking shops, and pattern makers; automotive repair shops; all enterprises in Alaska; new plants expected to employ more than eight persons and concerns, other than banks and savings institutions, which derive more than 20 per cent of their income from dividends, interest rents or royalties.



# CHECKLIST ON CONTROLS

## Materials Orders

**MACHINE TOOLS** — Amendment of July 25, 1952, of Order M-41 permits manufacturers of metalworking equipment to accept, fabricate and deliver rated orders as long as such orders do not delay rated orders beyond required delivery dates. Exhibit D of the amendment lists nine types of metalworking machinery which may not be delivered against unrated orders. The amendment was effective July 25.

**STEEL WAREHOUSES**—Direction 3 of Order M-6A provides emergency plans for the acquisition and distribution of steel by warehouses. Warehouses are required to hold for 15 days after receipt 50 per cent of their stock of 9 shapes and forms of steel. Mills, within limits, are required to provide the warehouses with 120 per cent of base period receipts. The direction was issued July 30, 1952, effective that date.

**INSECT WIRE SCREENING**—Revocation on July 29, 1952, of Order M-42 removes limitations on acceptance of DO-rated orders and leadtime requirements for orders insect wire screening.

**AIRCRAFT QUALITY STEEL** — Amendment of July 30, 1952, to Schedule 1, NPA Order M-6A, permits warehouses to sell aircraft quality steel for use in certain additional essential military programs. Amendment was effective July 30.

## Controlled Materials Plan

**INVENTORIES** — Amendment of July 29, 1952, to Section 3 (a) of CMP Regulation 2 reduces permitted inventories of steel controlled materials to 30 days between Sept. 1, 1952, and the end of the year. Amendment was effective July 29.

**STEEL PRODUCTS** — Amendment of July 29, 1952, of Direction 4 to CMP Regulation 3 provides a preference to the military, Atomic Energy Commission, machine tool builders and component manufacturers to acquire Class A and Class B products. The amendment, which became effective July 29, will be in effect throughout this year.

**STEEL**—Direction 15 to CMP Regulation 1 provides a priority to the military, Atomic Energy Commission, machine tool builders and component manufacturers for delivery of steel forms and shapes ordered for second or third quarter delivery. Mills are told to defer other orders if need be to make these deliveries by Nov. 30, 1952. Direction was issued July 29, 1952, effective that date.

**STEEL**—Direction 16 to CMP Regulation 1 authorizes steel consumers to place, and steel producers to accept and schedule for delivery through November, 1952, presently unplaced third quarter allotment authorizations. It also provides that steel mills may accept and schedule for shipment through February, 1953, fourth quarter allotment authorizations for non-defense programs. Direction was issued July 29, 1952, effective that date.

**CONSTRUCTION** — Direction 6 to



## Train Load of Packaged Power

These M-47 tanks pull away from the ordnance plant of the American Locomotive Co., Schenectady, N. Y., for delivery to armored troops. Each tank carries a complete set of spare and component parts to make it ready for immediate action. Its 90-mm gun, dual-fire control apparatus and an 810-hp, V-12 engine make it one of the hardest hitting, most easily maneuverable tanks produced

CMP Regulation 6 issued July 29, 1952, provides a limited priority for orders calling for delivery in the third or earlier quarters placed under construction allotments or self-certification provisions. These orders are to be filled ahead of fourth quarter orders, preferably before Nov. 30, 1952. A limited priority also is provided for carryovers of unfilled fourth quarter orders through Feb. 28, 1953. It was effective July 29.

**STEEL WAREHOUSES**—Direction 12 to CMP Regulation 1 revokes temporary restriction on shipment of steel by warehouses to makers of civilian-type products. It was effective July 28.

**STEEL**—Revocation on July 28, 1952, of CMP Regulation 1, Direction 13 eliminates special priority provided the military for placement of orders on unstruck mills as well as deliveries under those orders.

## Price Regulations

**WASTE PRODUCTS**—Interpretation 1 of Ceiling Price Regulation 98 clarifies the determination of ceiling prices for blanks, punchings and similar residue of industrial fabrication of prime quality steel products. Interpretation was issued July 28, 1952.

**BROWN IRON ORE**—Amendment 1 to Revision 1 of Supplementary Regulation 41 of the General Ceiling Price Regulation permits brown iron ore producers in Missouri and Texas who sell their product mostly to cement mills for use in meeting government specifications for quick-setting cement to increase their price ceiling. Amendment was issued July 28, 1952, effective that date.

**EXPORT SALES**—Manufacturers who

calculated their export sales prices on the Manufacturers' General Ceiling Price Regulation, CPR 22, and the Machinery and Related Manufactured Goods Regulation, CPR 30, must hereafter compute their export prices under the Export Regulation, CPR 61. This situation was clarified by Amendment 51 to Ceiling Price Regulation 22 and Amendment 35 to Ceiling Price Regulation 30, issued on July 28, 1952.

**BRAND-NAME ARTICLES** — Section 43 of the Retail Consumer Goods Regulation is superseded by Ceiling Price Regulation 7, supplementary Regulation 4, Amendment 2. CPR 7 provides extensions of time for uniform resellers' ceilings on brand-name merchandise. It was issued July 28, 1952, effective then.

**UNPREPARED SCRAP**—Amendment 9 to Ceiling Price Regulation 5 establishes a new Grade 35 for unprepared scrap classification to cover wrecked automobiles, busses, trucks, trailers and other motor vehicles sold prior to demolition for scrapping purposes. Amendment 9 was issued July 29, 1952, effective Aug. 2.

**SCRAP DEALERS**—Amendment 10 to Ceiling Price Regulation 5 permits a New York City scrap dealer to use the ceiling shipping point prices established for New York City even though he ships from a rail point immediately outside the city limits. It was issued July 29, 1952, effective Aug. 2.

**STEEL PRICING**—Special Steel Pricing Order 1, effective July 26, 1952, allows steel companies to adjust their invoices according to the new prices yet to be decided.



**Election issues will affect business hopes for many years to come. Management would do well to bolster its weak public relations and sell the voters its point of view**

THIS WOULD be a good year for your radio and television debut. Government policy toward business for many years to come will be decided by the election in November, and management's story is sorely in need of effective telling.

"Management has always been weak in public relations," a former senator told STEEL. "The way the Truman administration was able to put the entire blame for the steel strike and the resulting steel price increase on steel management is illustration of this weakness."

**Start Now**—"In view of the issues in the present campaign, this is a good time to make a new start on public relations," he continued. "It would be most effective if the industrialists in every city, town and hamlet in the land organized a campaign of their own to tell the people of their communities about these issues."

This year's elections will exert a powerful bearing on the kind of tax bill we get next year, on whether labor leaders will continue to have the dominant voice in determining administration policies and especially on what happens in the field of labor legislation. The diametrically opposed views of the Democratic and Republican platforms on the Taft-Hartley Act mean that voters this coming November will go a long way toward deciding whether in the future an employer will bargain with his own employees, or tight little groups from management and labor will dictate terms to industry generally, or federal government will seize industries and settle disputes on the basis of political expediency.

**Powerful Voice** — The former senator sums up by saying, "If industrialists undertake to do such a job this year and do it intelligently and effectively, they not only can be a powerful influence in determining election results this year, but also will get a lot more respect from politicians in the future than they have in the past."

## Danes Not Disdained

Though the 13,000-ton tanker recently delivered by a Danish shipbuilding firm to the Soviet Union has "strategic value", President Truman decided it would be detrimental to the security of the United States to terminate aid to Denmark under the provisions of the so-called Battle Act.

In considering this matter, it was duly noted that the firm's contract for the tanker was placed in 1949 before the communist aggression in Korea and long before enactment of the Battle Act. Furthermore, Denmark, though "a small nation that lives in the shadow of a powerful and unfriendly power," is "co-operating consistently with the United States and other free governments in the development of collective programs to eliminate or curtail the shipment of strategic commodities to the Soviet Union and its satellites."

## Steel Specs To Don Civvies . . .

Manufacturers who long have been urging the armed services to supplant the present military steel specifications with the better-known commercial identifications should have their wish granted. A program that will make it possible to use such steel specifications as AISI and SAE for parallel Navy specifications has been initiated by Navy's Office of Naval Material. After the Navy has pioneered, the other armed services will follow suit; in fact, the Air Force already has approved a similar project in principle although the staff to do the work still is to be organized.

Vice Admiral C. W. Fox, chief of Naval Material, advises STEEL that he has asked all bureaus of the Navy to screen specifications covering ferrous metals to determine those in which commercial designations are not included. Amendments and revisions to in-

clude nonproprietary designation wherever possible are sought.

## Titanium Research Grows . . .

To enlarge the raw material base for production of titanium, the Bureau of Mines' Boulder City experiment station has instituted a research program aimed at the development of methods for recovering the metal from titanium-rich slags and from ilmenite samples from deposits in New York, Virginia, North Carolina and Florida. At present titanium production is from rutile which is very scarce compared with demand. The Boulder City station continues its efforts to develop a continuous process to replace the present batch process for producing titanium, the objective being not only cost reduction but better control of metal quality.

## Aussies To Get Equipment . . .

Bulk of the new \$50 million loan by the International Bank, Washington, to the Commonwealth of Australia will be spent abroad for capital equipment and components for these projects: Completion of a 1500-ton blast furnace, new coke ovens, new open-hearth furnaces, strip mill, tin mill and galvanizing shop at Port Kembla; completion of new coke ovens, a new 1000-ton blast furnace and a new skelp mill at Newcastle; erection of a new rolling mill at Kwinana in Western Australia; completion of ore and coal mining and treating equipment in New South Wales, South Australia and Western Australia.

Proceeds of the loan also will go for components for equipment to expand lead and zinc production, develop the tin dredging and concentrating industry, expand copper smelting and refining capacity at Port Kembla and complete new alumina and aluminum plants of the Australian Aluminum Production Commission. Some of the loan, which is in addition to \$100 million loan in August 1950, will go for establishment of a plant to manufacture crawler tractors and earth-moving equipment.



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trailing axle—all components are of the same basic construction as in our heavy-duty equipment for capacities up to 10,000 pounds.

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An FS with 36-inch forks can make a "U" turn in an 8½-foot aisle! It can stack a 48-inch load at right angles to a 10-foot aisle without sacrificing stability. It's fast—in acceleration and travel—yet smooth as silk. Starting, stopping, reversing, lifting, lowering—all operator functions are engineered for greatest ease, speed and safety.

### ► It's **ECONOMICAL!**

100% functional design means that every dollar you invest in an FS goes to work for you. You save on operating and on maintenance costs. But its greatest value to you is its dependable, continuous service—*always on the job!* By any standard you apply, the FS is the best buy in its class.

*All the features engineered into the outstanding Baker Type FS, 2000-pound Fork Truck are described in an illustrated 8-page specification bulletin. Use this coupon to get your copy.*

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Pilot plant for the Niederschachtofen process of making pig iron without using high grade coal or coke is



located in Cologne, Germany. Close-up (right) of the 16-ton-capacity furnace shows comparatively low stack

## German Promise: Pig Iron Without Coke

**Coal-poor, iron ore-rich countries look expectantly at a new German cokeless blast furnace process which will fulfill their desire to make pig iron at home**

**EFFICIENT PRODUCTION** of pig iron without use of high grade coal or coke is a step closer to reality today. West Germans pronounce their pilot plant for a new briquetting process, which requires no coking coal, a success and are beginning construction of a full-size furnace to perfect the process. Development of the "Niederschachtofen" (meaning blast furnace low in height) method holds little promise for countries which have high grade coking coal at hand, such as the U. S., Britain, Belgium and Germany. There are other countries, though, which want to produce pig iron because they have rich iron ore deposits, but which have no high grade coal.

**Implied Threat**—Countries such as Spain, Portugal and certain South American countries are already expressing interest in the procedure. Implications of the new process begin to hit home with the possibility that it will become general practice in just those countries on whom the U. S. may eventually have to rely for supplies of iron ore.

Basically the process is this: Dried iron ore (pulpy types of ore are especially useful) and coal (nearly every type of coal can be used, including lignite) are processed and ground. Then, they are mixed and briquetted. These briquettes are charged into the low

furnace, together with limestone, and are melted down with hot blast. The briquettes weigh about 3 ounces each. By changing their size it is possible to speed up or slow down the melting process.

**Ceiling Is Low**—Compared with the normal-type blast furnace, the Niederschachtofen requires no coke ovens, no high stack, no blowers and no hot-blast stoves. It does require a pulverizing and briquetting plant, a simple and rather low furnace, a blowing fan and an air heater of much smaller size than ordinary.

Total investments in such a furnace are only 75 per cent of investments in a similar capacity furnace of the normal type. For example, a small Niederschachtofen furnace of 50 tons daily capacity would cost about \$715,000 as against nearly \$955,000 in the case of the usual blast furnace.

**Iron Ore Stays Home**—Countries which heretofore had to depend on the importation of coking coal can now use their own low grade coal deposits and by pulverizing ores and coal and forming them into small nodules can produce iron at low costs. Also, countries like Spain, which currently must pay about \$72 for a ton of pig iron imported from Europe, can turn to producing their own iron at reduced costs.

The man responsible for this de-

velopment is Erich Killing, president of Stahlwerk Sudwestfalen. Two West German companies, Demag of Duisberg, and Klockner-Humboldt-Deutz company, Cologne, have formed a separate firm, D. H. N. Corp., which is already accepting foreign orders for the furnaces.

### Germany Boosts U.S. Imports

West Germany imported \$222 million worth of goods from the U. S. in the first quarter of 1952, passing the previous alltime high of fourth quarter, 1951, by \$34 million. Imports of coal from the U. S. accounted for \$70 million of the total.

Total West German imports in the first quarter of 1952 were \$1,030,000,000 or 12.3 per cent higher than in the last quarter of last year.

### 'Escape' Tariff Hike Spiked

An attempt to raise the import duties on motorcycles was rejected by the U. S. Tariff Commission. The Commission decided that motorcycles and parts were not being imported in quantities large enough to cause or threaten serious injury to the American motorcycle industry.

That's good news to Great Britain, which sent a note to the State Department on Apr. 9 expressing concern over the increasing number of requests by American industries for tariff hikes under the "escape clause" in many U. S. foreign trade agreements. U. K. is the principal supplier of motorcycles imported into the U. S.





## What They Mean

Now that we'll have to live with the controlled materials plan for another year, here's a list of numbers and symbols with which the program works

THE STEEL strike lends new significance to the Controlled Materials Plan.

For a year, at least, CMP will be with us. You will have to live with it, and to help you do so is the accompanying list of CMP allotment and/or DO rating symbols. It's the latest list and contains five additional symbols: B-5, the suffix to DO ratings A, B, C, E and Z-2 to indicate when orders bearing those ratings may be extended by the contractor to get components; E-4 for the Canadian atomic energy program; W-6 for maintenance, repair and operational supplies for iron and steel producers; V-9 for NPA's General Industrial Equipment Bureau; and AS for surplus aluminum purchases from sources other than mills.

SYMBOL	MAJOR PROGRAM INVOLVED	AGENCY, INDUSTRY
A-1	Aircraft	Dept. of Defense
A-2	Guided Missiles	Dept. of Defense
A-3	Ships	Dept. of Defense
A-4	Tank-Automotive	Dept. of Defense
A-5	Weapons	Dept. of Defense
A-6	Ammunition	Dept. of Defense
A-7	Electronic and Communications Equipment	Dept. of Defense
A-8	Fuel and Lubricants	Dept. of Defense
A-9	Clothing & Equipage	Dept. of Defense
B-1	Building Supplies and Equipment for Constr.-Troops	Dept. of Defense
B-2	Subsistence	Dept. of Defense
B-3	Transportation-Equipment	Dept. of Defense
B-5	Suffix to DO Ratings A, B, C, E and Z-2 (CMP Reg. 1, Amendment 3)	Dept. of Defense
B-9	Production-Equipment	Dept. of Defense
C-2	Dept. of Defense Construction	Dept. of Defense
C-3	MRO	Dept. of Defense
C-4	Certain munitions items being purchased by Foreign Gov'ts through domestic commercial channels	Dept. of Defense
C-5	Canadian military production program	Dept. of Defense
C-7	Repair and Utilities—Construction, Corps of Engineers	Dept. of Defense
C-8	Navy Controlled Material Warehouse	Dept. of Defense
C-9	Miscellaneous	Dept. of Defense
Z-9	Production Equipment for Certain Private Contractors	Dept. of Defense
D-1	Civil Works-Corps of Engineers	Dept. of Army
D-2	Panama Canal Co.	Dept. of Army
D-3	Domiciliary Bldgs.-Old Soldiers Home	Dept. of Army
E-1	Construction	Atomic Energy Comm.
E-2	Operations (Including MRO)	Atomic Energy Comm.
E-3	Privately-owned Facilities	Atomic Energy Comm.
E-4	(See Canada)	Atomic Energy Comm.
F-1	Construction	Federal Civil Defense
F-2	Other	Federal Civil Defense
F-3	Construction	Federal Security Adm.
F-4	Other	Federal Security Adm.
F-5	Construction	General Services Adm.
F-6	Other	General Services Adm.
F-7	Construction	Veterans Administration
F-8	Other	Veterans Administration
F-9	Construction	H. H. F. A.
G-1	Other	H. H. F. A.
G-2	Construction	Dept. of Agriculture
G-3	Other	Dept. of Agriculture
G-4	Construction	Defense Transport Adm.
G-5	Other	Defense Transport Adm.
G-6	Construction	Canada
G-7	Other	Canada
E-4	Canadian Atomic Energy Program	Canada
G-8	Shipyard Construction	Maritime Adm.-Dept. of Com.
H-1	Construction	Petroleum Adm. for
H-2	Other	Petroleum Adm. for
H-9	MRO (Order M-46)	Petroleum Adm. for
S-1	"B" Products	Petroleum Adm. for
H-3	Construction-Major Plant Additions (Order M-50)	Defense Elect. Power
H-4	Minor Requirements Including MRO Self-assigned (Order M-50)	Defense Elect. Power
H-5	Construction	Defense Materials Procurement Adm.
H-6	MRO Self-assigned (Order M-78)	Defense Materials Procurement Adm.
H-7	Construction	Defense Solid Fuels
H-8	Other (Order M-87)	Defense Solid Fuels
J-1	Ship Building for Maritime	Dept. of Commerce: Maritime Adm.
J-2	Private Ship Building (Maritime-sponsored)	Dept. of Commerce: Maritime Adm.
J-3	Construction	Bureau of Public Roads
J-4	Other	Bureau of Public Roads
J-5	Construction	Civil Aero. Adm. Aero. Board
J-6	Other	Civil Aero. Adm. Aero. Board
J-8	Departmental Programs (all)	Dept. of Interior
J-9	Construction	Defense Fisheries Adm.
W-1	Military Equip. & Supplies Being Purchased by Foreign Gov'ts Through Domestic Commercial Channels	Dept. of Defense
W-3	Civilian Requirements of Foreign Areas under Military Adm.	Dept. of Defense
W-2	All Programs	Office of Inter. Trade
W-4	All Programs	Economic Coop. Adm.
J-7	All Programs (Voice of America)	Dept. of State
T-8	Construction	Water Resources Div.
T-9	MRO	Water Resources Div.
U-1	MRO & Operating Construction Self-assigned (M-77)	Communications Equip. NPA
U-2	MRO & Operating Construction U-2 Application-Authorization (M-77)	Communications Equip. NPA
U-3	MRO (Order M-73) Self-assigned	Railroad Equip. Div.
U-4	Construction	Industrial Expansion NPA



BOL	MAJOR PROGRAM INVOLVED	AGENCY, INDUSTRY, ETC.
0-Z-3	Metal Working Equipment	Industrial Expansion Div., NPA
5	Construction	Construction Controls Div., NPA
3	Industrial Plants, Factories, Facilities	(Direction 1 to CMP Reg. 6)
7	Residential Structures (Other than Multi-unit Buildings)	(Direction 1 to CMP Reg. 6)
3	All Other Types of Bldgs., Structures, Projects, except Those Listed in Table 1 of M-4A and Multi-unit Bldgs.	(Direction 1 to CMP Reg. 6)
9	Material for Repairs or Replacement of Supplies or Equipment due to Flood Conditions	(Direction 2 to CMP Reg. 5)
1	Laboratories	(Order M-71) Self-assigned
2	For Producers of Non-Controlled Materials for Use of Production Material	
3	Field Offices, Dept. of Commerce	
4	Material for Repair or Reconstruction of Buildings or Projects Due to Flood Damage	(Direction 2 to Reg. 6)

BOL	MAJOR PROGRAM INVOLVED
5	To identify steel products purchased by (a) one steel producer from another (steel producer) or (b) one warehouse from another warehouse for resale without further conversion.
6	To Identify: Brass Mill Products and Copper Wire Mill Products Required by Distributors to Replenish Stocks (Order M-82) and (Order M-86).
7	Aluminum for Destructive Uses (M-84)
1	Priorities and Directives.
0-Z-3	Basketing—NPA Reg. 2.
9	See Dept. of Defense—Production Equip.
4	To Transfer Aluminum Between (a) Aluminum Producers, (b) Aluminum Producers and Aluminum Smelters, and (c) Aluminum Producers and Aluminum Distributors.
3	Surplus Aluminum purchases from sources other than mills (M-88).
3	To transfer steel (a) between mills (b) from warehouses to mills in less than mill quantities for processing into another shape or form which is still a controlled material.
H	Prefix to Warehouse Serial Number on Shipments to Replenish Warehouse Stocks of Controlled Steel Products.
1	Identifies Purchase of Controlled and Non-controlled Materials by controlled Materials Producers for Use as Production Materials (except for aluminum acquired by use of symbol "AM"). (See Direction 2 to DMP Reg. 1).
7	Small Users (See Direction 1 to CMP Reg. 1).
2	Repair Parts and Materials for Repairmen (See CMP Reg. 7). (Not under CMP Reg. 5).
RO	CMP Reg. 5—Self-assigned.
-5	Distribution of Controlled Materials to Retailers (M-89).
-6	MRO for Iron and Steel Producers (M-105).

BOL	INDUSTRY DIVISION	SYMBOL	INDUSTRY DIVISION
-1	Agricultural Machinery & Implements	P-5	General Industrial Equipment
-2	Aircraft	V-9	General Industrial Equipment Bureau
-3	Aircraft	T-5	Iron and Steel
-4	Aluminum & Magnesium	T-6	Iron and Steel
-5	Building Materials	T-7	Iron and Steel
-6	Building Materials	P-8	Leather & Leather Products
-7	Building Materials	V-8	Leather & Leather Products
-8	Chemicals	P-9	Lumber & Lumber Products
-9	Communications Equipment	N-8	Metal Working Machinery & Equip.
-1	Construction Machinery	P-1	Metal Working Machinery & Equip.
-2	Mining Machinery and Equipment	P-6	Metal Working Machinery & Equip.
-3	Consumer Durable Goods	Z-2	Metal Working Machinery & Equip. (Dir. 3—M-1), (Dir. 1—M-5), (Dir. 2—M-11)
-3	Consumer Durable Goods	R-1	Miscellaneous Metals & Minerals
-4	Consumer Durable Goods	R-2	Motion Picture Photographic Products
-4	Consumer Durable Goods	R-3	Motor Vehicle
-5	Consumer Durable Goods	R-4	Motor Vehicle
-6	Consumer Durable Goods	V-5	Motor Vehicle
-7	Containers & Packaging	R-6	Motor Vehicle
-8	Containers & Packaging	R-7	Ordnance & Shipbuilding
-9	Containers & Packaging	R-8	Ordnance & Shipbuilding
-1	Containers & Packaging	R-9	Ordnance & Shipbuilding
-2	Copper	S-1	(See Petroleum Admn. for Defense)
-3	Electrical Equipment	S-2	Printing and Publishing
-4	Electrical Equipment	S-3	Pulp, Paper and Paper Board
-5	Electrical Equipment	S-4	Railroad Equipment (transpt.)
-6	Electronics	S-5	Railroad Equipment (transpt.)
-7	Electronics	P-7	Railroad Equipment (transpt.)
-8	Electronics	S-6	Rubber
-9	Electronics	S-7	Scientific & Technical Equipment
-1	Engine & Turbines	S-8	Scientific & Technical Equipment
-2	Engine & Turbines	S-9	Scientific & Technical Equipment
-3	Engine & Turbines	T-1	Service Equipment
-4	General Components	V-6	Service Equipment
-5	General Components	T-2	Service Equipment
-6	General Components	T-3	Textile
-7	General Components	T-4	Tin, Lead and Zinc
-9	General Industrial Equipment		
-2	General Industrial Equipment		
-3	General Industrial Equipment		
-4	General Industrial Equipment		

## Babies Boost Sales

Home laundry manufacturers say more births in 1940s mean more sales in 1960s

SALES of household washers, dryers and ironers amounted to more than 37 per cent of the combined major electric appliance unit volume and exceeded 31 per cent of the combined dollar volume in 1951, Frederick M. Mitchell, president, American Home Laundry Manufacturers' Association, told the organization at its annual summer meeting at the Grand Hotel, Mackinac Island, Mich. Included as major appliances were refrigerators, electric ranges and water heaters and food freezers.

**Outlook**—Mr. Mitchell, manager of home laundry equipment sales, Frigidaire Division, General Motors Corp., said that the potential market for home laundry equipment will be even greater in the future. About 2 million electric ironers, more than 6.5 million automatic tumbler dryers and as many as 17.5 million household washers will be sold in the next five years, he said.

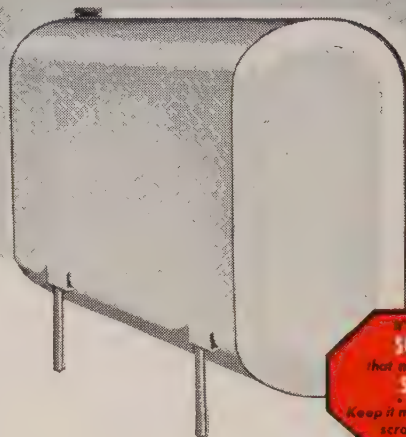
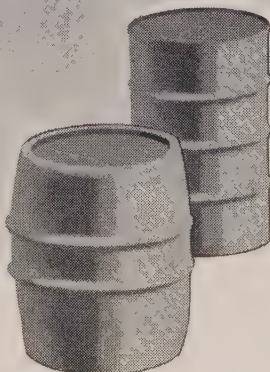
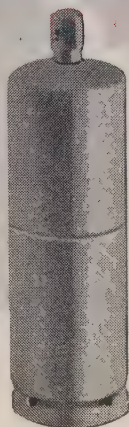
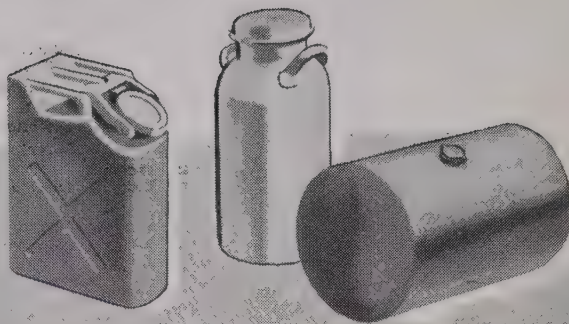
In a panel discussion on the marketing and distribution of the industry's products, Dr. Vergil D. Reed, vice president and associate director of research of J. Walter Thompson Co., New York, said that there will be a decline in the rate of new families in the present decade because of the birth-rate slump in the 1930s. However, the "baby birth bulge which began in 1941" will mean "an astounding bonus market" for these appliances through the 1960s and early 1970s.

**Low Saturation** — Robert W. Armstrong, managing editor of *Electrical Merchandising*, New York, told the panel that the low saturation point of home laundering appliances leaves much more room for sales than does, for example, the 87 per cent saturation of refrigerators.

Other members of the panel were Roy A. Bradt, vice president, Maytag Co., Newton, Iowa, Dr. Florence Ehrenkranz, associate professor, household equipment, Iowa State College, Ames, Iowa, and O. L. Earl, head of the Acme Aluminum Foundry Co., Chicago, chairman of the panel.



*Containers have*  
**LONGER LIFE**  
**LIGHTER WEIGHT**  
*when fabricated with*



MAKE A TON OF SHEET STEEL  
 GO FARTHER  
*Specify*



*... And  
 "MAKE YOUR PRODUCT  
 LAST LONGER"*

Containers and pressure vessels assure greater service when made of N-A-X HIGH-TENSILE steel. The durability of this low-alloy steel, its greater resistance to corrosion and abrasion, and its exceptional fabricating and welding qualities are important characteristics. The greater strength of N-A-X HIGH-TENSILE steel permits fabrication of containers from thinner sections—reducing costly deadweight to a minimum. If you are interested in effecting economies in barrels, drums or cylinders, investigate N-A-X HIGH-TENSILE steel.

**GREAT LAKES STEEL CORPORATION**

N - A - X Alloy Division

Ecorse, Detroit 29, Mich.

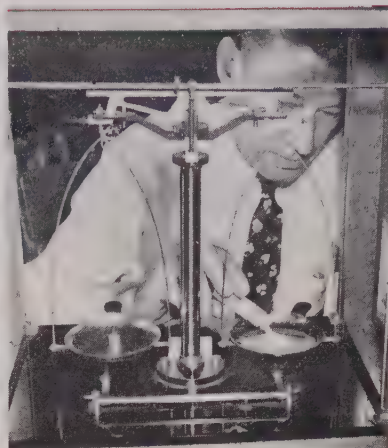
**NATIONAL STEEL**



**CORPORATION**



# Mirrors of Motordom



## Diamonds Galore, but None for Milady's Finger

Taking its cue from National Production Authority's appeal for conservation and reclamation of industrial jewels, Chrysler Corp. has salvaged more than 8800 carats of industrial diamonds in the past three years. At left, D. L. Vande Bunte, laboratory supervisor, dissolves the binder holding diamonds to tools in a special chemical

bath. Center, a technician examines some of the stones reclaimed in this way. This pile weighs 350 carats. A. E. Chilcott, right, head of Chrysler's non-productive material control department, weighs 50 carats of diamond dust reclaimed from factory grinding wheels. Crushing bort, as it is known, from Africa costs about \$5000 per pound

## Big changes are coming for Packard under the direction of James J. Nance, former Hotpoint president. He thinks the auto is too much an "assembled" car

**DETROIT**  
THE NAME is still the same but Packard Motor Car Co., under James J. Nance's direction, is on its way toward becoming a different company.

The changes so far have pretty much been below the surface, emerging only when new personnel appointments have been made. Some time in the not too distant future, however, more changes which have direct bearing on the metalworking industries will become evident.

**New Concept**—It is Mr. Nance's conviction that Packard is too much an "assembled" car, its major parts, with certain notable exceptions, being supplied it by vendors. There is not enough Packard labor going into the finished product.

Mr. Nance was the instigator of the same kind of change at Hotpoint when he made over what was primarily a merchandising organization into one of the highest ranking manufacturers of appliances.

**Still a Rumor**—His earlier interest in and success with ap-

pliances has spurred a lot of talk that Packard would enter that field. That rumor was reported in this column last week. There is no concrete evidence to indicate that this move is contemplated.

What can definitely be expected is that more of the Packard parts will be self-made. The company's defense work points the way in this regard.

**Body by Packard?**—As yet no decisions have apparently been reached as to what parts and assemblies will ultimately be made by the company. The most obvious one to undergo intense scrutiny from a cost standpoint will be the body, made by Mriggs Mfg. Co.

Whether Packard can move in the direction it wants to go as long as the steel strike's effects are noticable is problematic, but one emphasis in the near future will be on a close liaison with steel mills. The Nance men who followed him from Hotpoint demonstrated great ingenuity in obtaining steel for that company when its historical consumption pattern should have

doomed them to complete failure.

**Different Problem**—In the immediate postwar years the problem at Hotpoint was primarily one of obtaining steel. Packard's problems are infinitely more complicated. If it wants to make more of its own parts it has to get more steel, but if it also wants to make more cars, which it does, it has to persuade NPA that it should and also the the buying public that Packard is their choice.

Packard, it is said, permitted its dealer organization to decline when it failed to make an all-out effort to boost production sufficiently for the postwar period's pent-up demand. Strengthening of that phase of the operation is now going on. The product likewise is undergoing intense revision. Emphasis in the 1953 model will be on mechanical features of a reasonably prosaic nature, such as power steering, but after that model some radical engineering departures may be seen.

**New Personnel**—Fred J. Walters, who joined the company on Mr. Nance's heels as Packard vice president and presidential assistant, was last week elected vice president of marketing, organizing a

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department concerned with sales, product planning, merchandising and all other marketing functions. Leroy Spencer, who has been Packard's executive vice president, has resigned that post and has been named general manager of West Coast operations. To succeed Eugene C. Hoelzle, who has been vice president, comptroller and secretary, and will retire on Sept. 1, Wilmer B. Hoge, assistant comptroller, has been named comptroller.

## New Jeeps for the Military

With the first shipment of a new model "jeep" going from Willys-Overland to Ordnance in Detroit for testing, it appears as though a new edition to the history book about this unique military vehicle will have to be written. The new W-O jeep, first described in STEEL, Oct. 29, 1951, p. 49, as leading toward greater passenger comfort and being slightly larger over-all than its predecessor also has greater power, larger brakes, and integral machine gun mount.

Ford came close in 1941 to designing what might have become the standardized quarter-ton vehicle, but was nosed out by Willys in the tests. Ford then put away its plans and launched wholeheartedly into building jeeps from Willys' blueprints with every part interchangeable with those coming off the assembly line in Toledo.

A new design and development contract from Ordnance to Ford for \$2.5 million suggests that neither Ford nor Ordnance officials have forgotten Ford's earlier work. The Ford vehicle was to have been powered with a Ford tractor engine and to have made use of some standard parts.

When announcing the company's receipt of the new contract L. D. Crusoe, Ford Division general manager, advised that the new quarter-ton experimental vehicle, designated M151, will be new from the ground up, in frame, suspension, body and engine. This does not, however, rule out the possibility of its employing a completely new Ford tractor engine which will soon make its appearance. His comment that an improvement in power-to-weight ratio will be a fea-

Auto, Truck Output			
U. S. and Canada			
	1952	1951	
January	409,406	645,688	
February	467,691	658,918	
March	517,207	792,550	
April	576,505	680,281	
May	546,602	695,898	
June	541,134*	653,682	
July	233,500*	522,858	
August		571,442	
September		505,758	
October		558,971	
November		480,199	
December		402,729	
Total		7,179,161	
Week Ended	1952	1951	
June 28	124,337	156,105	
July 5	86,036	98,087	
July 12	70,592	117,747	
July 19	32,442	131,419	
July 26	41,430	131,598	
Aug. 2	25,000*	117,010	

Sources: Automotive Manufacturers Association, Ward's Automotive Reports. \*Preliminary.

ture of the experimental four-wheel drive vehicle in fact indicates that such will be the case since elimination of weight is avidly sought in both applications.

Ford's contract calls for delivery of prototypes inside of two years, the vehicles to be built in the Detroit area, presumably at the Highland Park Truck and Tractor Plant which currently has some space devoted to M-48 tank production, soon to be moved to a new plant in Livonia, Mich. Use of W-O's jeep for a multitude of civilian chores may be giving Ford the idea that its new vehicle has some of the potentialities of the model "T".

Named as manager of the M151 project is T. H. Holden, until now manager of truck and fleet sales of Ford Division. He had been in charge of one of the B-24 final assembly lines at Willow Run during the war. Under him will be a staff of about 60 engineers.

Another Ford personnel change of more than passing significance is the appointment of William Clay Ford to the post of manager of the newly created special product operations. This organization will cast around for products and activities which presumably are not directly related to the operations of the company's divisions. Bill Ford, 27, formerly was manager of the quality control department of Lincoln-Mercury's gas turbine operations.

## Tooling Up Past in War Jobs

Automaking companies are rapidly passing out of the tool-up stage on many of their defense contracts.

General Motors, for example, reports that its dollar deliveries of defense products were 8 per cent greater in second quarter than first and for 1952's first half were three times as large as in the like period a year ago. Output volume for the corporation will, of course, be far less than it was in World II but in diversity it will be about the same. Major categories for which its divisions hold contracts are tanks, planes, transmissions, engines, guns, ammunition, vehicles and instruments.

Some indication of the complexity of the tool-up procedure may be found at Kaiser-Frazer which is requiring 1788 assembly fixtures for the Chase C-123 cargo plane. Obtaining fixtures is now reported by some companies to be a greater problem than getting machine tools.

At Chevrolet Division's Tonawanda, N. Y., plant its first Wright R-3350-26W was completed last week. This engine which develops 2700 horsepower has a large brother, the supercharged "Dae-85" turning out 3500 horsepower which will be in production by November.

## Chrysler Moves Again

Having solved the tricky problem in logistics of moving its truck engine building operations from Highland Park to Trenton, Mich., Chrysler Corp. used the same "leapfrog" technique to take the equipment of its Marine & Industrial Engine Division from its Jefferson Ave. plant in Detroit to the new down-river location. The move of 394 items of production equipment and assembly conveyors was made without loss either in production or employment.

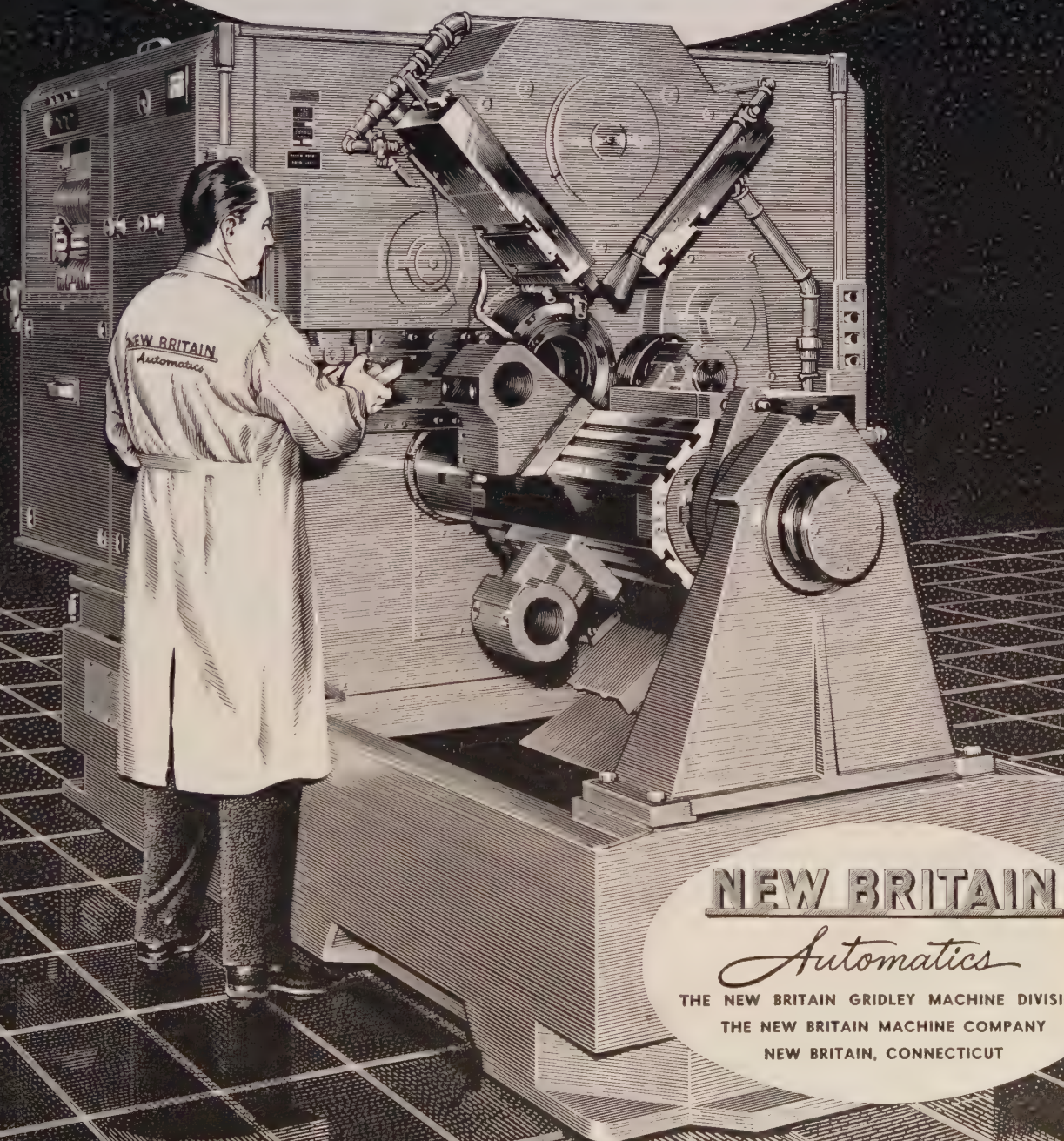
Available in the new plant will be an enlarged product development department to work on new applications through modification of the standard industrial engines now being produced. The division's output is capable of substantial increase in the new facility.





# *Invest in better methods for guaranteed returns*

Automatic Bar and Chucking Machines • Precision Boring Machines  
Lucas Horizontal Boring, Drilling and Milling Machines  
New Britain +GF+ Copying Lathes



**NEW BRITAIN**  
*Automatics*

THE NEW BRITAIN GRIDLEY MACHINE DIVISION  
THE NEW BRITAIN MACHINE COMPANY  
NEW BRITAIN, CONNECTICUT



U. S. DEPARTMENT OF COMMERCE  
NATIONAL PRODUCTION AUTHORITY

**TITLE 32A—NATIONAL DEFENSE,  
APPENDIX**

**Chapter VI—National Production Au-  
thority, Department of Commerce**

(NPA Order M-80, Schedule A)

**M-80—IRON AND STEEL—ALLOYING MATE-  
RIALS AND ALLOY PRODUCTS**

**SCHEDULE A—NICKEL-BEARING STAINLESS  
STEEL, HIGH NICKEL ALLOY, AND NICKEL  
SILVER**

This schedule is found in  
Appendix A

**SCHEDULE A—LIST OF PRODUCTS  
A**

**NICKEL-BEARING STAINLESS STEEL—PRODUCTS  
PROHIBITED**

**Agriculture farm equipment:**

- Barn cleaners.
- Ensilage cutters.
- Feeding troughs.
- Fertilizer spreading equipment.
- Grain bins and cribs.
- Implements, hand tools, etc.
- Silos.
- Spreaders.

**Automotive:**

- Bumpers, clad.
- Clad panels for buses.
- Grilles.
- Hardware.
- Horn rings.
- Hubcaps.
- Mufflers (except on heavy duty equip-  
ment).
- Steering wheel spoke wire.
- Trim.
- Wheel rings and wheel covers.

**Construction:**

- Curtain walls.
- Decorative trim.
- Doors.
- Down spouts.
- Elevator and escalator  
panels.
- Flashings.
- Gutters.
- Moldings.
- Roofing.
- Screens (except  
factory  
substitute).
- Sheathing.
- Spandrel.
- Storefronts.
- Window

**Electrical:**

- Pole line
- Pole line
- Radio tower
- Transmissions

**General:**

- Automatic vending  
food vending  
health specific  
mandatory).
- Bar equipment.
- Beer barrels.
- Coal mine and coal hoppers (except  
preparation plants).
- Diesel grilles.
- Jewelry (except watch cases and except  
functional springs).
- Pens and pencils including cape and bar-  
rels (except fountain pen nibs, separate  
fountain pen inner caps, and other  
functional parts).
- Radio antennae (except military).
- Railings.
- Stairs (except parts as permitted

contained in that list...  
heading C-I. No...  
nickel silver...  
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**IS THIS THE ORDER  
THAT STYMIED  
YOUR PRODUCTION?**

- Mobile food trucks.
- Scullery and dishwashing
- Soap dispensers.
- Steam tables.
- Work tables.
- Refrigerator dishes.
- Sinks.
- Spatulas.
- Table tops.
- Utility cans.
- Washing machine tubs.
- Refrigerator dishes.
- Sinks.
- Spatulas.
- Table tops.
- Utility cans.
- Washing machine tubs.

**Railroad:**

- Trim and decorative parts in passenger  
cars.

**Shipbuilding:**

- Pleasure craft galleys.
- Pleasure craft decorative trim.
- Pleasure craft rigging.
- Pleasure craft stack and ventilating shafts.

**Miscellaneous:**

- Band instrument valves.
- Binders (index books).

**Hospital equipment:**

- Counter tops.
- Furniture.
- Instrument cabinets.
- Instrument tables.
- Kick and push plates.
- Linen cabinets.
- Medicine cabinets.
- Operating tables.
- Paneling and wainscoting.
- Work tables.

**Household appliances:**

- Instrument name plates.
- Control pans on electric
- Rollers on gas
- Trays.

MANY OF THESE PRODUCTS ARE NOW BEING MADE OF

*Sharon* **430** *stainless*  
**SHARON STEEL**

If the critical material controls have  
stymied your production you'll want a  
copy of the Sharon '430' Stainless Steel  
bulletin just off the press.

The facts concerning this control-free,  
versatile metal have been gathered

together to help you evaluate its pos-  
sibilities for your particular production.

To get your copy just call the Sharon  
office nearest you or write **Dept. 8852,**  
**Sharon Steel Corporation, Sharon,**  
**Pa.**

**SHARON STEEL CORPORATION**

*Sharon, Pennsylvania*

All sheet metal building applications, in-  
cluding but not limited to:

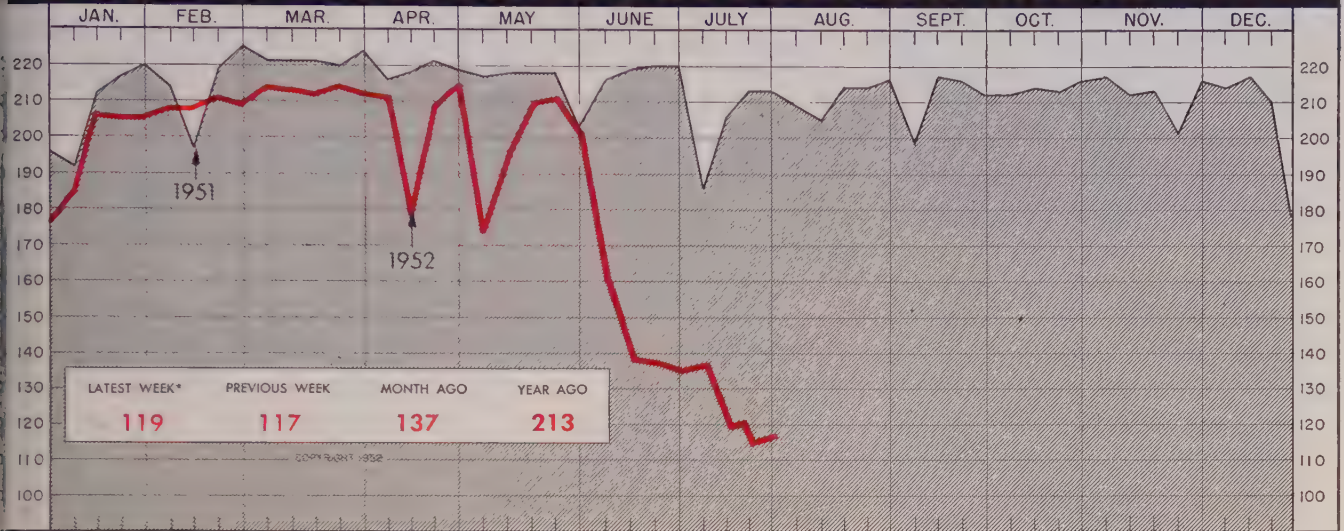
- Air ducts.
- Downspouts.
- Elevator cabs.
- Flashings.
- Garbage grinder parts.
- Gutters.
- Leaders.

- (except blades).
- Velocities.
- Pill containers.
- Perfume flacons.
- Watch bracelets.
- Watch cases.
- Watch chains.
- Watch crowns.
- Watch movement hold
- Watch strap pinions.
- Laundry equipment:
- Laundry chutes.
- Net racks.
- Plant truck tubs.



# The Business Trend

## STEEL'S INDUSTRIAL PRODUCTION INDEX (1936-1939=100)



Reflecting a slight rise in auto-truck operations STEEL's industrial activity index edged up 2 points to 119 per cent of the 1936-1939 average in the week ended July 26. Steel production rose 0.5 of a percentage point to 15.5 per cent of former capacity. Freight car loadings increased slightly, while electric power generation continued its seasonal decline by edging downward slightly during the week ended July 26.

## Bend in the Trend: Recovery Pattern Takes Shape

Steel lost by the strike broke industry's stride for the year. Civilian industries will be hardest hit, but most 1952 defense goals will be reached

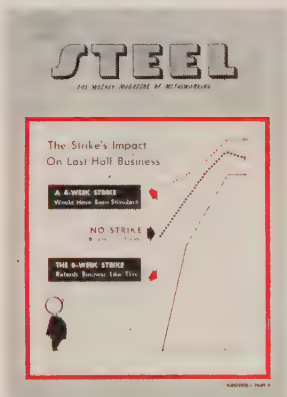
HOW LONG will the nation need to recover from the effects of the steel strike?

Take a glance at the trend line on the cover for STEEL's estimate of the industrial recovery rate from the scars inflicted by the eight-week strike. It shows in terms of the Federal Reserve Board's industrial production index that without a strike the nation's output would have climbed steadily to a peak near the end of the year. If the steel strike lasted only four weeks, the nation's industries would have achieved an even higher output this year—as a short walkout probably would have firmed consumer demand considerably. But the strike didn't last only four weeks; it dragged on for eight weeks.

Here is STEEL's estimate of what

the FRB index will do during the rest of the year, as the nation marches toward recovery.

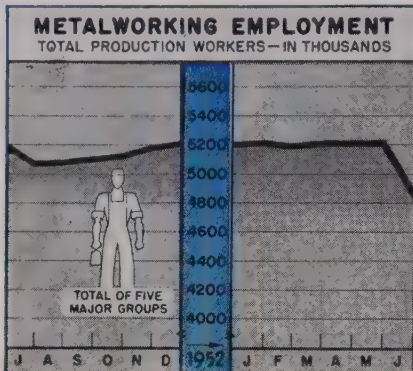
**Index Gains**—Industrial output stood at about 190 per cent of the 1935-39 average in July, compared with a reading of 209 per cent if the strike hadn't occurred. As steel production—which normally has a weighting of nearly 10 per cent of the index—gets underway and a few manufacturers receive more steel, the index will jump 10 points to 200 in August. As more fabricators are supplied, the index will shoot up 15 points farther to 215 per cent in September. Production will rise 5 points in October (220) and again in November (225). The index then will remain at 225 in December as holiday slowdowns start. Indicating an almost complete attainment of



production rates previously scheduled for the month, the FRB index in December will fall only 2 percentage points under the reading for the month if a strike hadn't occurred.

But recovery patterns will vary considerably among the different industries. Defense and defense related operations probably will be

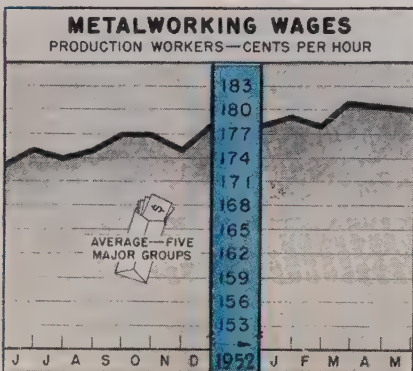




**Metalworking Employment**  
In Thousands

Production Workers—Five Major Groups					
1951	Prim. Mtls.	Fab. Prod.	Mach-inery	Elec. Mch'y.	Trans. Equip.
June	1,172	843	1,252	704	1,237
July	1,155	813	1,235	684	1,187
Aug.	1,165	816	1,211	695	1,197
Sept.	1,159	811	1,219	709	1,210
Oct.	1,160	809	1,242	707	1,205
Nov.	1,151	804	1,255	717	1,242
Dec.	1,165	806	1,270	724	1,238
1952					
Jan.	1,163	804	1,276	723	1,240
Feb.	1,160	805	1,280	726	1,243
Mar.	1,154	807	1,280	722	1,266
Apr.	1,146	806	1,276	714	1,287
May	1,150	797	1,265	709	1,308
June	783	797	1,251	701	1,330

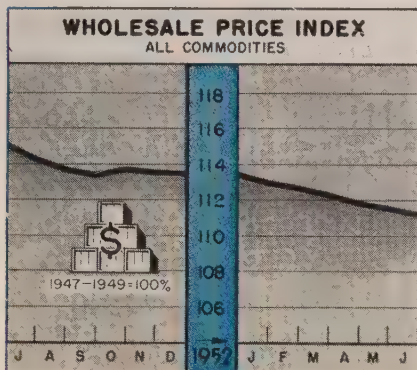
U. S. Bureau of Labor Statistics



**Metalworking Wages**  
(cents)

Production Workers—Five Major Groups					
1951	Prim. Mtls.	Fab. Prod.	Mach-inery	Elec. Mch'y.	Trans. Equip.
June	181.9	166.1	176.2	163.7	186.0
July	181.9	165.8	175.4	162.6	186.3
Aug.	180.2	166.3	176.6	164.0	186.7
Sept.	183.5	168.2	178.8	164.5	188.4
Oct.	181.6	168.8	179.4	164.9	188.5
Nov.	181.9	168.9	170.7	165.5	189.2
Dec.	183.6	170.0	181.7	167.0	190.3
1952					
Jan.	184.7	170.3	182.0	166.9	191.4
Feb.	183.1	170.5	183.0	166.8	190.3
Mar.	184.8	171.5	184.1	169.5	193.4
Apr.	183.0	170.9	183.6	169.5	193.0
May	184.0	171.9	184.0	169.5	192.4

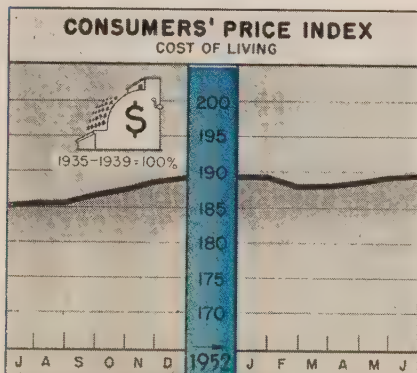
U. S. Bureau of Labor Statistics



**Wholesale Price Index**  
(1947-1949=100)

	1952	1951	1950
Jan.	113.0	115.0	97.7
Feb.	112.6	116.5	98.3
Mar.	112.3	116.5	98.5
Apr.	111.8	116.3	98.5
May	111.6	115.9	99.6
June	111.3	115.1	100.2
July	...	114.2	103.0
Aug.	...	113.7	105.2
Sept.	...	113.4	107.1
Oct.	...	113.7	107.7
Nov.	...	113.6	109.3
Dec.	...	113.5	112.1

U. S. Bureau of Labor Statistics



**Consumer Price Index**  
(1935-1939=100)

	1952	1951	1950
Jan.	189.1	181.5	168.2
Feb.	187.9	173.8	167.9
Mar.	188.0	184.5	168.4
Apr.	188.8	184.6	168.5
May	189.0	185.4	169.3
June	189.6	185.2	170.2
July	...	185.5	172.0
Aug.	...	185.5	173.4
Sept.	...	186.6	174.6
Oct.	...	187.4	175.6
Nov.	...	188.6	176.4
Dec.	...	189.1	178.8

U. S. Bureau of Labor Statistics

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**Issue Dates on other FACTS and FIGURES Published by STEEL**

Construction ..... July 21  
Durable Goods ..... June 23  
Employ., Steel ..... Apr. 28  
Fab. Struc. Steel ..... July 21  
Foundry Equip. .... July 21  
Freight Cars ..... July 14  
Furnaces ..... July 7  
Gear Sales ..... July 14

Gray Iron Castings, June 2  
Indus. Production .. July 14  
Ironers ..... July 7  
Machine Tools ..... July 14  
Malleable Castings June 2  
Pumps ..... July 23  
Radio, TV ..... July 21  
Refrigerators ..... July 28

Ranges, Elec. .... July 28  
Ranges, Cast ..... July 28  
Steel Castings ..... June 2  
Steel Forgings ..... June 9  
Steel Shipments ..... June 23  
Vacuum Cleaners ..... June 30  
Washers ..... June 30  
Water Heaters ..... June 30

among the first to recover as the government channels steel to them. Metalworking companies working on defense orders won't attain production schedules in the third quarter, but will push up their output substantially in the remaining months of the year. Total defense turnout in 1952 will probably add up to the scheduled amount.

On the other hand, civilian industries whose production requires steel and steel products are in for rough times ahead. Many of these companies will get only enough steel for token production in the next few months, as they wait their turn for increased steel allotments. Some companies won't be able to meet production schedules until well into 1953. However, some companies in areas of extreme labor surplus may get substantial allotments. Threat of war or no threat of war, the administration is going to do everything possible to relieve labor surpluses in this presidential election year.

## Steel Output To Plunge . . .

Total steel produced this year will fall about 25 per cent under the goal set before the strike. The nation's plants will turn out 93 million net tons steel for ingots and castings during 1952, compared with the previous estimate of 124 million net tons of steel. This means that we will produce 70 million net tons in finished steel, instead of some 83 million net tons.

Next winter another steel production curtailment may take place. The iron ore miners' sympathy strike in the Mesabi will cut ore mining operations to 71 million net tons from the 91-96 million net tons expected this year. Stockpiles normally built for the winter will be unusually low. If ore get moved, expensive rail shipments during and after the late shipping season will be necessary.

## Outlook For Autos . . .

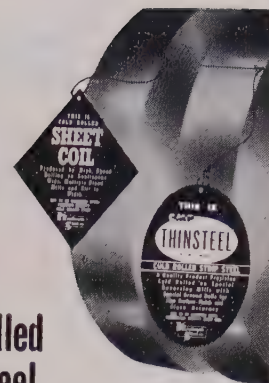
The automotive industry, the steelmakers' best customer, will continue to be sharply affected by the steel strike. Assemblies will come to a near blackout this month before enough steel can be pipelined to production lines to increase output. U.S. and Canadian plants will slash by at least 10 per



## BAROMETERS OF BUSINESS

INDUSTRY	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Output (per cent of capacity) <sup>2</sup> .....	15.5	15.0	101.5
Electric Power Distributed (million kwhr).....	7,100 <sup>1</sup>	7,180	7,005
Bituminous Coal Output (daily av.—1000 tons)...	1,096	887	1,692
Petroleum Production (daily av.—1000 bbl).....	6,000 <sup>1</sup>	6,078	6,205
Construction Volume (ENR—millions).....	\$278.2	\$295.7	\$251.9
Automobile, Truck Output (Ward's—units).....	41,475	32,055	131,598
TRADE			
Freight Car Loadings (unit—1000 cars).....	600 <sup>1</sup>	609	805
Business Failures (Dun & Bradstreet, number)...	137	103	184
Currency in Circulation (millions) <sup>3</sup> .....	\$28,884	\$28,988	\$27,706
Dept. Store Sales (changes from year ago) <sup>3</sup> .....	+1%	+1%	-21%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)....	\$16,329	\$16,709	\$14,998
Federal Gross Debt (billions).....	\$263.0	\$262.9	\$255.3
Bond Volume, NYSE (millions).....	\$13.8	\$14.1	\$15.6
Stocks Sales, NYSE (thousands of shares).....	5,120	5,466	7,864
Loans and Investments (billions) <sup>4</sup> .....	\$76.6	\$76.7	\$70.1
United States Gov't. Obligations Held (billions) <sup>4</sup>	\$33.4	\$33.7	\$30.7
PRICES			
STEEL's Weighted Finished Steel Price Index <sup>5</sup>	171.92	171.92	171.92
STEEL's Nonferrous Metal Price Index <sup>6</sup> .....	224.6	224.6	226.0
All Commodities <sup>7</sup> .....	111.2	111.1	115.0
All Commodities Other Than Farm and Foods <sup>7</sup> ..	112.0	111.9	116.6

\*Dates on request. <sup>1</sup>Preliminary. <sup>2</sup>Weekly capacities, net tons: 1951, 1,999,035; 1952, 2,077,040. <sup>3</sup>Federal Reserve Board. <sup>4</sup>Member banks, Federal Reserve System. <sup>5</sup>1935-1939=100. <sup>6</sup>1936-1939=100. <sup>7</sup>Bureau of Labor Statistics Index, 1947-1949=100.

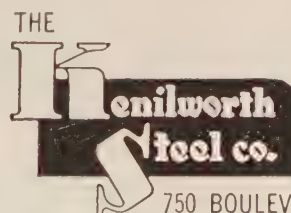


which  
cold-rolled  
strip steel  
costs less  
"in the end"

- if variations in physical characteristics are permissible
- if fairly heavy oversize gauge variations are not objectionable
- if the fabricating operations are not too complicated and do not require intricate, expensive dies
- if a fine surface finish is not essential
- if a good base for paint or enamel is desired
- if you do not object to some "square footage" loss due to oversize variation
- then Sheet Coil will probably be the most economical material for the job . . . .

- ... on the other hand—
- if you must have a high degree of uniformity of chemistry and physical properties—and precision gauge tolerances
- if you wish to avoid rapid die wear due to heavy oversize gauge variations
- if you require a fine finish or a better base for plating
- if you want maximum "square footage" for greatest parts yield per ton
- if you want selected tempers for maximum strength and lightest weight
- then you'll find C. M. P. THINSTEEL far and away the most economical material.

To be sure of getting the right steel, order "sheet coil" or "THINSTEEL" and be sure each coil carries an identifying tag. If we can help you select the right grade, just call on us.



750 BOULEVARD  
KENILWORTH, N. J.

**SPECIALISTS IN FLAT ROLLED  
METAL PRODUCTS**

Telephones: N. Y. CORtlandt 7-2427  
N. J. UNionville 2-6900  
Teletype: Roselle, N. J. 387

cent the previously estimated output of 4.8 million passenger cars and 1.4 million trucks. Of this scheduled amount, the U.S. was to assemble about 4.5 million cars and 1.2 million trucks this year. U.S. and Canadian auto-truck output will total 5.4 million units this year, compared with 7.2 million units last year and 8.4 million produced in 1950.

### Consumer Durables Lag ...

Makers of heavy civilian durables will be forced to cut present output this year from 5 to 10 per cent. And this cut will spell near-disaster to many companies in the appliance industries. Many of these companies, faced with substantial demand lags in the first half of the year, have already pared their output to the bone. Production of radio and television sets in the first six months of 1952 fell 37 per cent below the year-ago turnout, while household appliances dropped 28 per cent from the same months last year. These industries were depending on awakened consumer interest in the fall months to save the day.

The steel shortage is expected to slash the present low turnout even further, and it will make little difference whether the consumer

pounds or doesn't pound on appliance makers' doors.

### Construction Activity Cut ...

Contractors and architects will find business much harder to obtain in the remaining months of the year and in early 1953.

Before the strike, outlays for new construction this year were expected to reach \$32 billion. Now it is becoming increasingly evident that the steel strike will cut this figure 10 per cent. Private home building, which was the main support of this year's total outlays, will take a large cut as steel is produced for other uses.

### Trends Ahead ...

Lumber, mining and quarrying equipment output may be cut from 5 to 10 per cent this year by the steel strike. . . The steel strike is affecting the oil drilling industry severely. Only 2500 rotary rigs are in action now, compared with 3000 at the year's start. . . While many areas are expecting bumper crops this year, makers of farm machinery may have to cut production from 5 to 10 per cent. . . Ordnance and shipbuilding will slow down in the next few months, but losses will be made up probably by 1953.



# It's performance that counts

There's more to a "Champion" than the tape measure shows



## THE CHAMPION

6' - HEIGHT - 6'
182 lbs. - WEIGHT - 182 lbs.
42" - CHEST - 42"
15½" - BICEPS - 15½"
7" - WRIST - 7"
33" - WAIST - 33"
20" - THIGH - 20"
13" - CALF - 13"

## AVERAGE FIGHTER



He Wins the  
Tough Ones

He Loses the  
Close Decisions

## PRESTEM DIE BLOCKS...

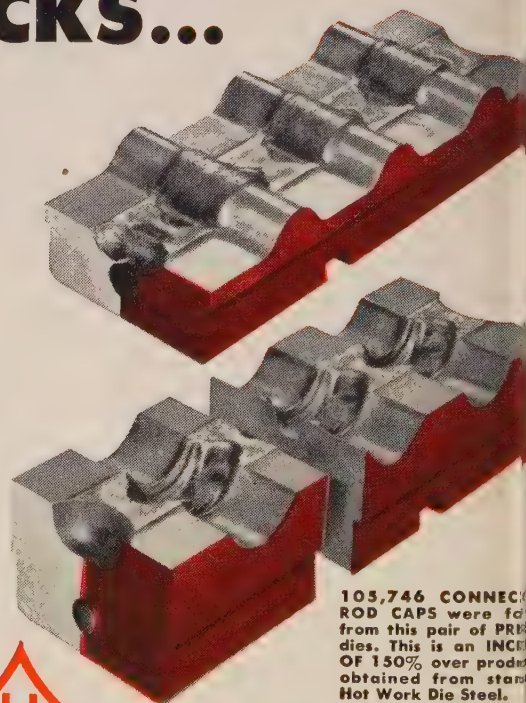
have the qualities of a "Champion"  
in the field of die steel.

This new steel analysis was developed and recently introduced by Heppenstall for the hot working of steels in forging presses and upsetters. It is available in the form of blocks and bars for solid press dies, insert dies, upsetter dies, and punches. It machines readily at high hardness... has high impact resistance... can be water cooled during press forging operations.

Prestem's record in large automotive forge shops proves the following benefits for production:

1. Resistance to abrasion and wear at high temperatures.
2. Resistance to heat checking during long runs.
3. Increase in production per die.

For complete information, address Heppenstall Company, Pittsburgh 1, Pa. Sales offices in principal cities.



103,746 CONNECTICUT ROD CAPS were forged from this pair of PRESTEM dies. This is an INCREASE OF 150% over production obtained from standard Hot Work Die Steel.



## Heppenstall

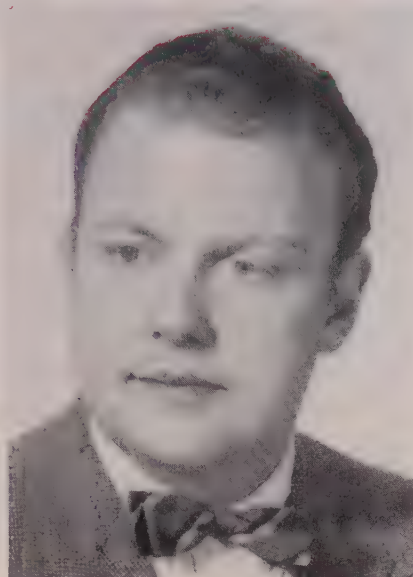
The most dependable name in die blocks



# Men of Industry



**GEORGE H. ACKER**  
... exec. V. P., Cleveland Worm & Gear



**FRANK T. FREY**  
... Geuder, Paeschke & Frey exec. V. P.



**JOHN D. McLELLAN**  
... joins Marion Electrical Instrument

George H. Acker was elected executive vice president, Cleveland Worm & Gear Co., Cleveland, as well as its subsidiary, Farval Corp. Since 1942 he has been vice president in charge of engineering.

Whiting Corp., Harvey, Ill., elected J. A. Handley president and a director. For the last year, Mr. Handley has been vice president and chief executive officer. Prior to that he was manager of Whiting's branch plant in California.

H. W. Petty was appointed sales manager, R. E. Uptegraff Mfg. Co., Scottdale, Pa. He has been manager of the Pittsburgh sales office and continues headquarters there.

Ohio Knife Co., Cincinnati, appointed W. Wentz Alspaugh sales engineer. Located in Salem, O., he will be in charge of servicing steel mills in their requirements for shear blades and slitter knives.

Roland H. Johnson, former sales manager of E. W. Bliss Co.'s can making machinery division, rejoins the Canton, O., firm in an executive capacity.

Col. John Frye, completing a tour of duty in Washington, was re-appointed manager of sales of Columbia Steel & Shafting Co. and its Summerill Tubing Division, Carnegie, Pa.

Frank T. Frey was promoted to executive vice president of Geuder, Paeschke & Frey Co., Milwaukee. Formerly vice president in charge of purchasing, he now heads both the purchasing and manufacturing divisions.

L. R. Hummel, manager of Toledo Scale Co.'s Philadelphia zone, was advanced to manager of a newly formed sales territory which includes metropolitan New York and New England in addition to Philadelphia. R. M. Garverich is manager of the combined New York and New England territory, reporting to Mr. Hummel. P. R. Garrison heads the combined Denver and Dallas zones.

H. R. Smith was appointed aircraft operations manager, Kaiser-Frazer Corp., Willow Run, Mich., and B. M. Laney was named aircraft works manager. Mr. Smith replaces John Tacke, transferred to the West Coast.

R. W. Miller was elected a director of Caterpillar Tractor Co., Peoria, Ill. He succeeds his father, the late C. O. G. Miller.

Burt C. Monesmith, manufacturing manager at the California division of Lockheed Aircraft Corp. since 1950, was elected vice president and manufacturing manager of the corporation.

John D. McLellan joined Marion Electrical Instrument Co., Manchester, N. H., as plant manager in charge of manufacturing operations. He formerly was vice president and general manager of J. H. Bunnell & Co.

Thomas E. Tracy has joined the staff of Hall Aluminum Co., Chicago, as sales manager.

New vice presidents elected by Cleveland-Cliffs Iron Co., Cleveland, include F. A. Bell, the company's counsel at Ishpeming, Mich., who moves to Cleveland; H. S. Harrison, who continues as treasurer; J. H. Kerr, continuing as secretary; J. S. Wilbur, manager, ore sales; and H. L. Gobeille, manager, marine department. D. R. Forrest and Fayette Brown Jr. were elected assistant vice presidents.

Edward F. Tucker was elected president, Stebbins Engineering & Mfg. Co., Watertown, N. Y., succeeding Carl F. Richter, who now becomes chairman of the board.

Youngstown Sheet & Tube Co. promotions in the Chicago sales office include Rodney V. Nilsson, named manager of tin plate sales, and R. Paul Broadhurst, named assistant district sales manager.

Robert J. Malkmus has retired as purchasing agent of Hanson-Van

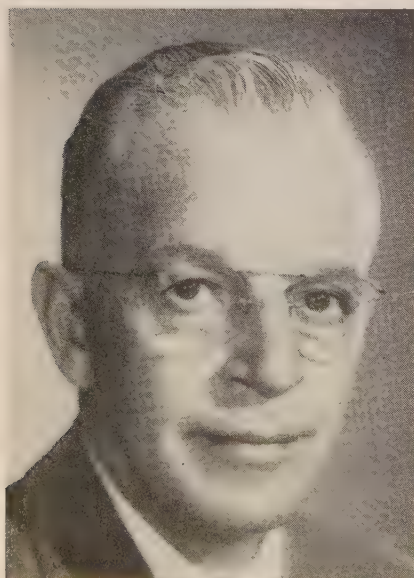




**DONN D. GREENSHIELDS**  
... exec. V. P., Nat'l Screw & Mfg.



**FRANK J. NUGENT**  
... Schaible Co. V. P.-sales



**J. A. McBRIDE**  
... Buell Engineering V. P.

**Winkle-Munning Co., Matawan, N. J.**

**Donn D. Greenshields** was elected executive vice president, **National Screw & Mfg. Co., Cleveland.** Recently made a director of the company, he has been vice president since 1949. **George F. Jenkins**, general sales manager since 1950, was elected vice president-sales. **Robert E. Black** becomes sales manager, and **Kenneth A. Miller** will be assistant sales manager.

**United States Steel Corp., New York,** appointed as assistant treasurers **Howard E. Isham**, with general administrative authority; **William H. Lang**, to handle corporate financial matters; and **John E. Hill**, in charge of foreign finance and credit activities.

**Frank J. Nugent** was elected vice president in charge of sales for **Schaible Co., Cincinnati.** He was sales manager of **Ingersoll Division, Borg Warner Corp.**

**L. C. Wilkoff**, vice president and treasurer, was named chairman, **Youngstown Steel Car Corp., Niles, O.,** to succeed **William Wilkoff**, a founder, who remains as a director and consultant. **Arthur E. Wilkoff**, executive vice president and secretary, was named president. **H. A. Beil** becomes secretary.

**Vernon L. Durrstein**, special design engineer of **National Supply Co.'s engine division,** was appointed assistant chief engineer of that division at **Springfield, O.**

**J. A. McBride** was named general manager and vice president in charge of sales at **Buell Engineering Co. Inc., New York.** He has been sales manager since 1938.

**Vernon D. Oftedahl**, former western sales manager for **R. W. Snyder Co. Inc.,** was appointed director of purchasing of **Society for Visual Education Inc., Chicago.**

**Eriez Mfg. Co., Erie, Pa.,** appointed **M. L. Cramer** assistant sales manager.

Changes in the executive personnel of **National Steel Corp., Pittsburgh,** and its division, **Weirton Steel Co.,** include: **Paul E. Shroads**, vice president of **National Steel,** also becomes treasurer to succeed the late

**F. M. Hesse. C. G. Tournay**, treasurer of **Weirton Steel,** succeeds **Mr. Shroads** as comptroller and assistant treasurer. **Floyd T. Bowen** becomes treasurer of **Weirton.**

**D. C. Shaw III** was promoted to secretary, **Rust Engineering Co., Pittsburgh.** **John W. Clark** becomes assistant secretary of **Rust** in **Birmingham,** and **A. J. Jacobs** assistant secretary in **Pittsburgh.**

**Dr. C. J. Breitwieser** was promoted to director of engineering by **P. F. Mallory & Co. Inc., Indianapolis.** He previously served as executive assistant to the vice president-engineering.

**Frank Forest** has resigned as director of purchases, **Ironrite Inc., M. Clemens, Mich.,** and is succeeded by **John H. Uhlig.**

**W. J. Stebler** was elected executive vice president, **General American Transportation Corp., Chicago.**

**M. C. Peterson** was named manager of national account sales for **Warner Electric Brake & Clutch Co., Beloit, Wis.** He joined the firm a year ago as **Chicago district manager.** His offices remain at their present location.

Promotions announced by **Carpenter Steel Co., Reading, Pa.,** included **S. C. Shapleigh** as branch manager and **F. J. Weldon** as assistant branch manager in **Bridgeport, Conn.; F. J. McCarty**, assistant branch manager in **Hartford, Conn.; J. D. Nelson**, assistant branch manager in **Providence, R. I.; P. W. Holtz**, branch manager in **Chicago;** and **C. W. Windfelder**, branch manager in **Milwaukee.**

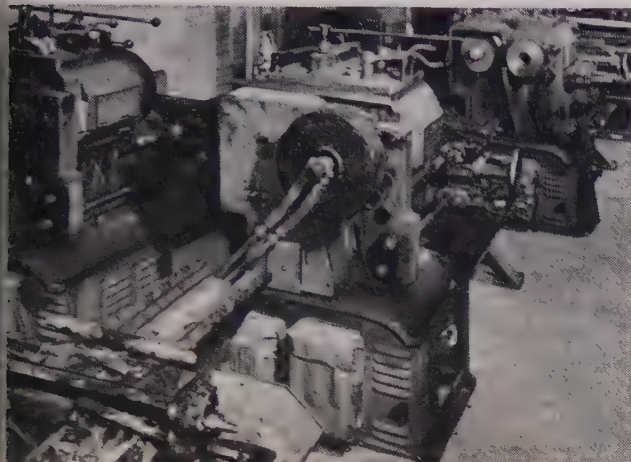
**R. C. Gough** was appointed special representative in the **New England** area for **Joseph Dixon Crucible Co., Jersey City, N. J.**

**Sawhill Mfg. Co., Sharon, Pa.,** appointed **D. M. Middleton** and **F. D. Hamlin** district sales managers. **Mr. Middleton** will cover western and southern Ohio, southern Indiana and Kentucky in a new district office at **Springfield, O.** **Mr. Hamlin** will manage sales in eastern and northern Ohio, western Pennsylvania, West Virginia and western Virginia.

**Jay M. Sharp** was named to the newly created post of advertising



# DEFENSE PLANT DE-MOTHBALLED FAST WITH THE HELP OF TWO SUN PRODUCTS



**BEFORE:** The machinery in this Navy-owned shell-making plant stood idle—coated with a rust preventive—for 5 years after World War II. When asked to reactivate the plant in three months, the U. S. Hoffman Machinery Corporation anticipated a complete machinery teardown for cleaning, because the rust preventive had seeped into the working parts.



**AFTER:** No teardown was needed. Sun Spirits did the external cleaning job and the detergency of Sunvis H.D. 700 Oils the internal job—cleaning out parts and freeing hydraulic systems. Thanks to the effectiveness of these products, the job was completed and the plant put in operating condition within the three months specified by the Navy.

Recently the U. S. Hoffman Machinery Corporation was asked to reopen a World War II Navy-owned shell-making plant and start production in three months. The machinery, idle for 5 years, had been protected by an external layer of rust preventive. Headstocks, gear units and hydraulic lines were among the parts coated, and unfortunately some of the protective material had seeped into them. It looked as if the machinery might have to be torn down to be cleaned.

Hoffman invited Sun and several other oil companies to survey the machinery and suggest cleaning methods. The company chose Sun's recommendations on the basis of their soundness, as well as on Sun's record for reliable service in other Hoffman plants. The Sun products used eliminated the need for any dismantling. Sun Spirits did the external cleaning job. Sunvis H.D. 700 Oils freed up the hydraulic systems, many of which were extremely sluggish; the detergency of these oils flushed away every last trace of sludge and rust preventive.

Throughout the entire cleaning and recharging process, Sun representatives stayed on the job. As part of Sun's regular service, they trained the oilers, helped work out an inventory control system, and set up lubrication schedules. The terms of the Navy contract were met, and vital defense production was started on schedule. In the year and a half that has since elapsed, there have been no machine failures traceable to poor lubrication.

**SUN OIL COMPANY, Dept. S-8  
Philadelphia 3, Pa.**

- ☐ I would like to consult with a Sun representative.  
☐ Please send me a copy of "Sunvis H.D. 700 Oils."

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Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**TECHNICAL ASSISTANCE AVAILABLE.** Sun's engineers are at your service for consultation on any matters concerning hydraulics, lubrication or metalworking. It will pay you to utilize the broad experience they have gained in solving a wide variety of lubricating and processing problems in many different industries.

**SUN INDUSTRIAL PRODUCTS**

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL







**K. C. GARDNER SR.**  
... chairman, United Eng. & Foundry

promotion manager for Aluminum Co. of America, Pittsburgh.

United Engineering & Foundry Co., Pittsburgh, elected **K. C. Gardner Sr.** chairman and chief executive officer to fill the vacancy created by the death of **F. C. Biggert Jr.** **Geoffrey G. Beard**, formerly executive vice president, was elected president and general manager. **K. C. Gardner Jr.** becomes executive vice president and continues direction of plant operations. **Maurice P. Sieger** becomes vice president and senior engineer.

**Oliver G. Lear**, president, **Fluid Controls Inc.**, Willoughby, O., has severed his affiliations with Aluminum Cooking Utensil Co., division of Aluminum Co. of America, to take a more active part in the management of Fluid Controls.

**W. O. Meckley** was appointed manager of engineering and **H. M. Wales** as manager of sales for General Electric Co.'s newly formed accessory turbine organization at the Lynn River Works, West Lynn, Mass. **John D. Seaver**, formerly engineer in charge of the meter



**GEOFFREY G. BEARD**  
... new president, United Eng. & Foundry

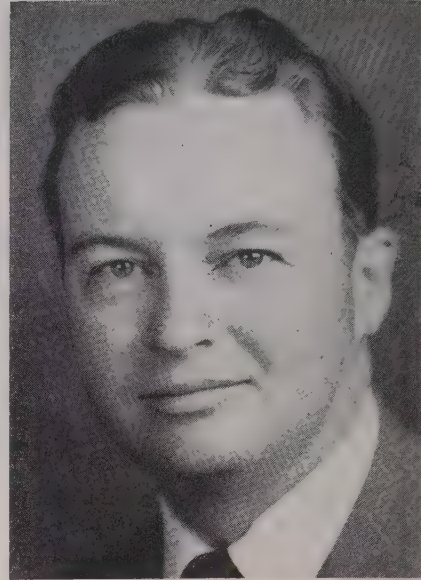
and instrument laboratory at West Lynn, moves to Schenectady, N. Y., as assistant manager of engineering, industrial heating department.

Promotions in the Buffalo plant of **Worthington Corp.** are: **Harold W. Whiting**, appointed assistant to the executive engineer; **W. A. Sheerer**, chief engineer-compressor division; **W. J. Blessing**, consulting engineer; and **W. M. Kauffmann**, chief engineer-engine division.

**Louis H. LaMotte**, vice president-sales, **International Business Machines Corp.**, New York, was elected to the board of directors.

**Kenton Chickering** was promoted to general sales staff manager, **Oil Well Supply Division**, U. S. Steel Co., Dallas. He is succeeded as manager, commercial research section, by **N. K. Schnaitter**. Mr. Chickering succeeds **M. F. Jones**, appointed Gulf Coast area manager at Houston.

**Boyce C. Bond** joined **Pittsburgh Coke & Chemical Co.**'s fine chemicals division as sales supervisor. His office will be at Villanova, Pa.



**FRANCIS H. WICKLINE**  
... National Tube electrical engineer

**Francis H. Wickline** was appointed electrical engineer for **National Tube Division**, **United States Steel Co.**, Pittsburgh. He has been employed in the construction engineering department at its Lorain, O., plant since 1946.

**Karl D. Jahnke** was appointed credit manager and was also elected assistant secretary-treasurer of **Dodge Mfg. Corp.**, Mishawaka, Ind.

**Howard W. Brandt**, director of industrial and public relations at the Rochester, N. Y., Products Division, **General Motors Corp.**, was named general manager of the plant. He succeeds **Paul W. Rhamer**, who is assistant general manager of GM's Allison Division.

**John H. Thomas**, formerly manager of the Homewood Manufacturing & Repair Plant, **Westinghouse Electric Corp.**, Pittsburgh, was appointed manager of manufacturing at East Springfield, Mass.

**Robert C. Luckey** was appointed safety engineer, chemical plants division, **Blaw-Knox Construction Co.**, Pittsburgh.

## OBITUARIES...

**Lamot du Pont**, 71, former president, **E. I. du Pont de Nemours & Co. Inc.**, Wilmington, Del., died July 24. He retired as board chairman in 1948.

**S. M. Rosenberg**, 69, secretary-treasurer, **Howard Industries Inc.**, Buffalo, died July 23. He former-

ly was president, **Lake City Iron & Metal Co.**

**Leonard Peckitt**, 92, former president, **Crane Iron Works**, Catasauqua, Pa., died July 21.

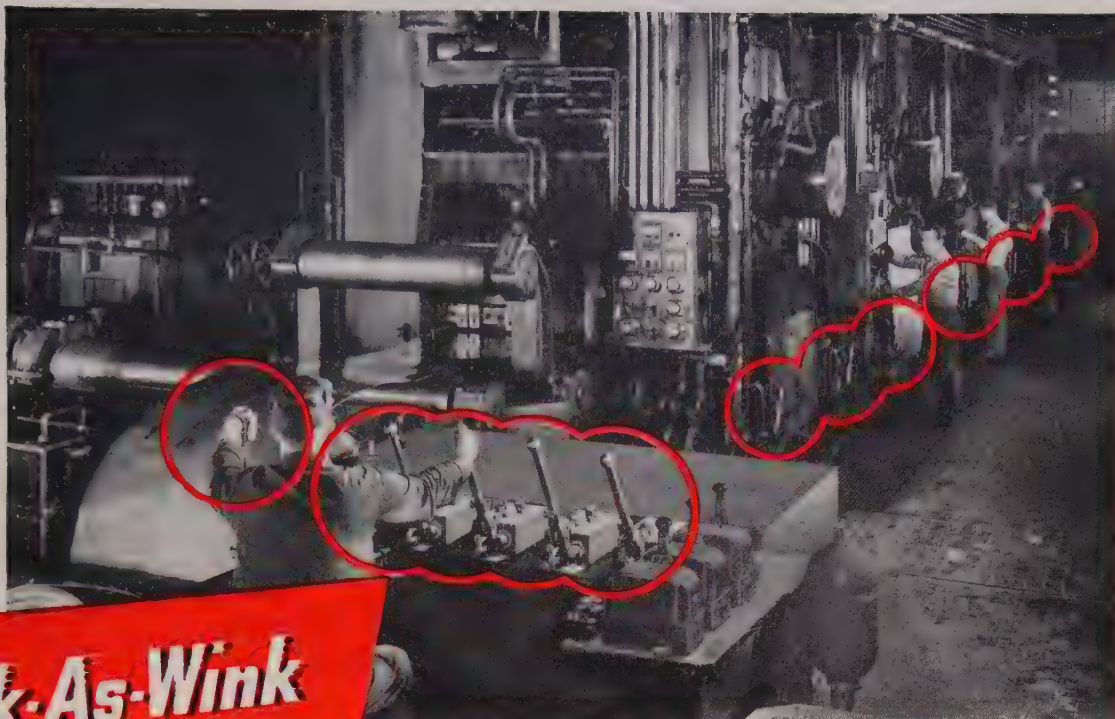
**Frank Frey**, 66, retired head of **Lake Erie Forge & Machine Co.**, Cleveland, died July 25. He retired last year.

**Chester H. MacGirr**, 59, a partner in **Macco Products Co.**, Chicago, died July 23.

**Harold P. Sussman**, 40, an executive of **Steel Rolling Co. Inc.**, Brooklyn, N. Y., died July 23.

**Clyde P. Craine**, 68, former board chairman, **Detroit Steel Corp.**, Detroit, died July 22.



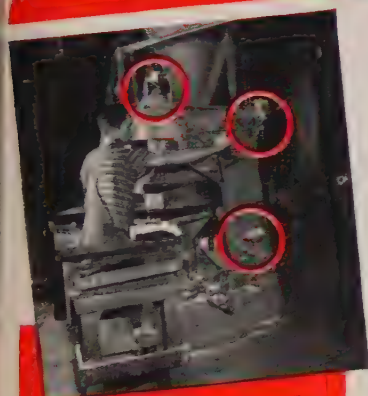


View of Quick-As-Wink Hydraulic Valve Installation in Steel Mill

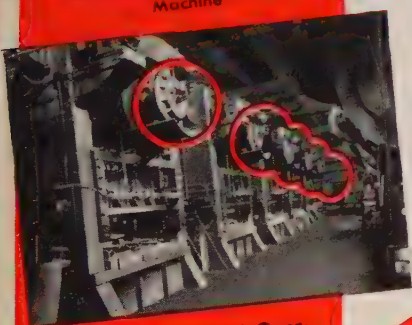
## Quick-As-Wink Control Valves

**smooth month-after-month performance  
minimizes your down-time**

● Gambling with breakdowns, lost production and plant tie-ups just doesn't pay. Play safe! Install Quick-As-Wink Valves on *all* your air and hydraulic controls. Positive and fast acting, all operating parts of Quick-As-Wink Valves are in pressure balance, eliminating any tendency to creep or crawl. Quick-As-Wink Valves can be serviced easily and quickly, during normal maintenance periods, usually without disturbing connecting piping. There is no metal to metal seating. All parts are standardized and readily interchangeable, avoiding the delay of returning valves to the factory for servicing, and the expense of maintaining large standby inventories. Standardize on Quick-As-Wink — and get *all* the advantages that *only* Quick-As-Wink Valves can give you.



Quick-As-Wink Completely Enclosed Diaphragm Operated Air Valves on Core Making Machine



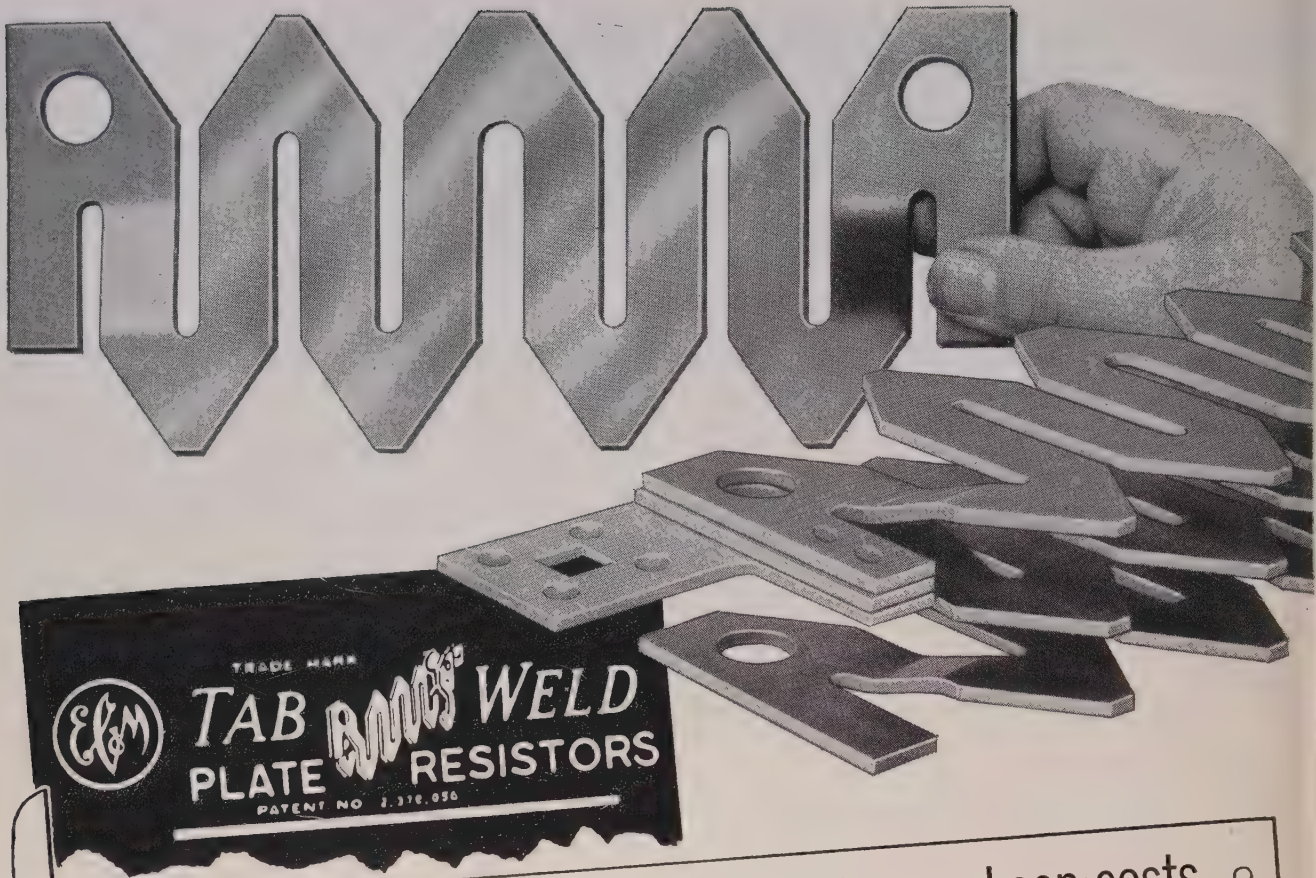
Quick-As-Wink Solenoid Operated Air Valves on Battery of Heavy Duty Presses



## Quick-As-Wink — AIR AND HYDRAULIC — Control Valves

Hand, Foot, Cam, Diaphragm and Solenoid Operated  
Mfd. by C. B. HUNT & SON, INC., 1911 East Pershing St., Salem, Ohio



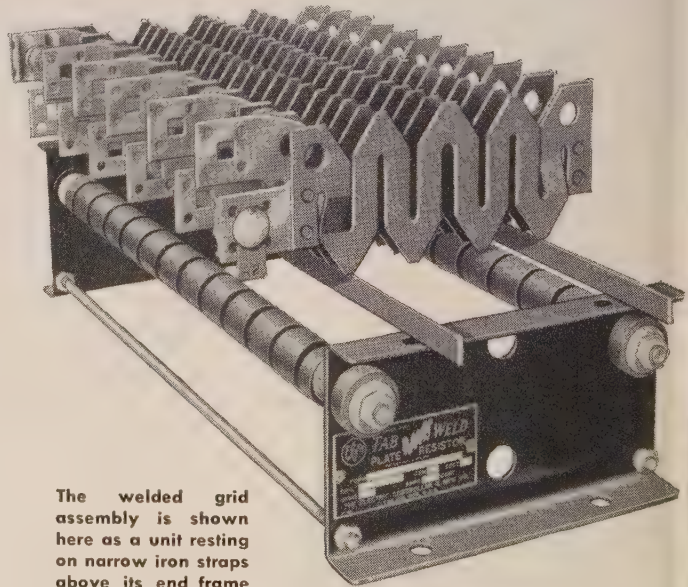


designed to save manpower and reduce upkeep costs ◦

The welded GRID-ASSEMBLY steps up resistor-performance these 3 ways:

- 1-STABILIZES the ohmic value, independent of the clamping-nuts.
- 2-STOPS BURNING at grid-eyes and at tap-plates.
- 3-SIMPLIFIES tap-shifting, when adjusting resistance for best motor operation—also makes it easier to replace sections.

For reduced maintenance where maintenance can be easily overlooked, switch to EC&M Tab-Weld PLATE RESISTORS.



The welded grid assembly is shown here as a unit resting on narrow iron straps above its end frame support rods, and spacers.

SPECIFY BULLETIN

942

EC&M TAB-WELD RESISTORS



**THE ELECTRIC CONTROLLER & MFG. CO.**

2698 EAST 79TH STREET

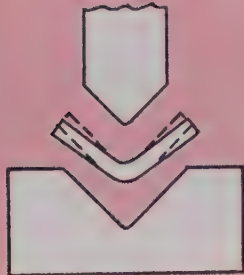


CLEVELAND 4, OHIO

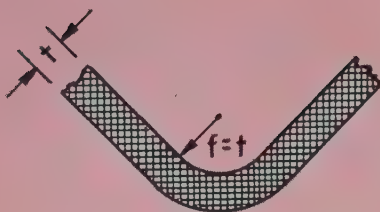


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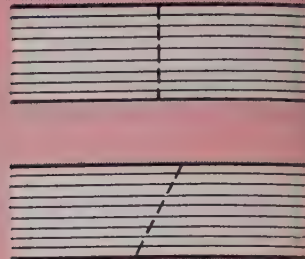




Sketch showing how metal tries to recover its original shape or position after bending stress is released



Bend radius should be no less than stock thickness of the metal



Springback varies as bend is made at right angle to direction of rolling or at any other angle

# Springback

## Problem in Metal Forming

Reluctance of metal to stay put after it's formed can be overcome. Bends with exact angles can be made by over-bending, restriking or by using special dies

By FREDERICO STRASSER

IN FORMING or bending operations springback is one of the ever-present major problems. This is the property of any piece of metal which is bent or formed, either by hand, or by mechanical means not to conserve completely the shape given to it by the tool, but to try to recover somewhat its original shape, or position, after the bending stress is released.

**Determining Factors** — Springback depends upon a series of circumstances, many of which are amply variable and practically uncontrollable:

1. Kind of material. Metals with higher ultimate tensile strength have greater springback index. Consequently, in case of steel sheet, the springback angle depends on the carbon content.

2. Temper of material. The harder the stock, the greater the springback.

3. Sheet gage. The greater the thickness, the less the springback.

4. Size of inner bend radius. The sharper the bend, in proportion to metal thickness, the less the springback, because the material has more possibility for setting. Bend radius cannot be varied arbitrarily too much; it should be no less than stock thickness.

**Secondary Points** — In addition to these four chief factors, there are also following, secondary ones:

5. Direction of rolling of the strip; springback varies as the bend is made at right angle to the direction of rolling or any angle.

6. Die opening and consequently length of the workpiece leg which is pressed between the male and female dies. In case of greater die openings, the material is more easily set, and consequently the springback is somewhat less.

7. Set up of tool. The same die

with the same kind and shape of primary blank may give different values of springback when set up in the press (or press brake) a second time.

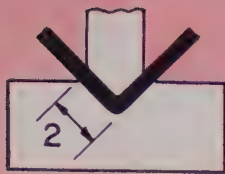
8. Clearance and alignment. During the set up these conditions are also important, because, if they are different from the correct values, the springback may be also different.

9. Correct bottom position of the press-ram stroke. In case of bottoming dies, the correct regulation of the press-stroke has a decided influence on the springback index. In fact, the more energetic the bottoming action, the more the setting of the material and the less the springback.

10. Speed of press-ram. Varying the speed of the press-ram, also varies the springback angle.

For all these reasons, it is impossible to figure out springback

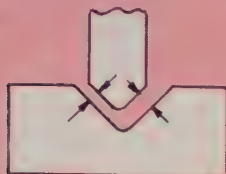




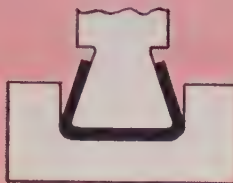
When die opening is great, material is more easily set and springback is somewhat less



Punch with slightly smaller angle than the female die opening bottoming the workpieces



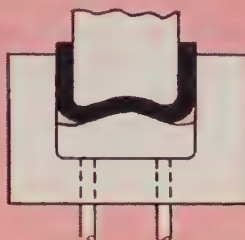
Clearance and alignment are important during setup. If they are different from correct values, springback may be different



For overforming punch must have a proper undercut at each side



Punch with small projecting portion designed for bottoming workpieces in bending zone



Special dies used for overforming are provided with pressure pad that has a convex surface

work-bending angles correctly.

**Special dies** — Several methods have been devised for bottoming the workpieces in the bending zone, setting the metal definitively and destroying the remnant elasticity of the metal. One way consists in making the punch with a small projecting portion. The other execution contemplates a punch with a slightly smaller angle than the female die opening and at the same time machining a radius at the root of the die opening to coin the work slightly in that zone.

Use of these special dies should be avoided because the structure of the metal is unfavorably affected by their action.

**Channel-Type Work**—The angle that is formed or bent most frequently is the simple, right, or 90-degree angle. Nevertheless, other kinds of formings must be considered with respect to springback, because this phenomenon affects every kind of forming or bending operation. Among these operations the most common—after the right angle bending—is the square “U” forming. Two simultaneous 90-degree bends are formed.

For overforming, use a standard female die, only the punch (male die) must have a proper undercut at each side. Special dies used for these cases are provided with a pressure pad with a convex surface which arches the base of the workpiece sufficiently so when it is removed from the die, the base will straighten out and the sides draw in, to the right angle.

For all cases of “U” forming, clearance between male and female dies should correspond exactly to stock thickness. In this way springback index is held to a minimum.

in advance with reasonable tolerances. In each case, it must be found out by practical, empirical tests.

**Remedies** — There are a few methods for combatting springback, i.e. for obtaining bends with exactly determined angles: a) Overbending, b) restriking, c) special dies.

**Overbending**—Simplest and most commonly employed method for compensating springback consists in bending or forming the blank beyond the required angle; so when the pressure load is removed, the workpiece opens somewhat and assumes the exact, proper shape, as desired.

Difference between the tool angle and the required angle must be exactly equal to the springback angle. This latter is determined always, only by actual, practical trials. For a beginning, one should

use the data given in the accompanying table and correct the tool according to the results obtained by the trials.

**Restriking**—In those cases where the bending angle values must be held to close tolerances and springback is difficult to control, make use of second operation squeezing (re hitting) dies. These dies size

SPRINGBACK INDEXES FOR DIFFERENT METALS.

Stock Thickness In Inches	Spring Steel			Hard Steel			Med. Hard Steel			Soft Steel		
	Phosphor Bronze						Hard Brass			Soft Brass		
	a	b	c	a	b	c	a	b	c	a	b	c
0.01	12	15	20	7	9	12	5	6	8	4	5	6
0.02	11	14	18.5	6.5	8.5	11	4.5	5.5	7.5	3.5	4.5	6
0.03	10	13	17	6	8	10	4	5	7	3	4	5.5
0.04	9	12	16	5	7	9.5	3	4	7	2.5	4	5
0.05	8	10	15	4.5	6	9	2.5	3.5	6.5	2	3.5	5
0.06	7	9	14	4	5.5	8.5	2	3	6	2	3	4.5
0.07	6	8	13	3.5	5	8	2	3	5.5	2	3	4
0.08	5	8	12	3	5	7.5	2	2.5	5	2	3	4
0.10	4	7.5	11	2.5	4.5	7	1.5	2	4.5	1.5	2.5	3.5
0.12	3.5	7	10	2	4	6.5	1	1.5	4	1	2	3
0.14	3.5	6	9	2	3.5	6	0.5	1	3.5	0.5	1.5	3
0.16	3.5	5	8	2	3	5	0	1	3	0	1	2

and over  
Observations: a—bend radius equal or less than stock thickness  
b—bend radius between 1 and 5 times stock thickness  
c—bend radius over 5 times stock thickness



# CHROME CARBIDE PROVIDES HIGH CORROSION RESISTANCE

By J. D. KENNEDY

Carboloy Department  
General Electric Co.  
Detroit

**Latest man-created metal made by powder metallurgy is natural for mechanical parts of machinery that must resist wear, corrosion, high temperature or erosion**

UNUSUAL combination of properties exhibited by grade 608 chrome carbide, first of the new series 600 cemented chrome carbides to be made available by Carboloy Department of General Electric Co., is expected to lead to wide application of the new man-created metal.

The material has extremely high resistance to both corrosion and erosion, plus good abrasion resistance. Many preliminary successful applications already have been found. Made by the powder metallurgy process, this metal is lightweight, has a coefficient of thermal expansion approximately the same as steel, is completely non-magnetic and has extreme resistance to high temperature oxidation.

**Its Properties**—The new metal is composed of 83 per cent chrome carbide, 2 per cent tungsten carbide and 15 per cent nickel. Among its outstanding physical properties are its density, which is about half

that of tungsten carbide, and its coefficient of thermal expansion, which approximates that of steel. Actually tungsten carbide has a thermal expansion coefficient about half that of steel. It is a hard, strong metal and resists abrasion much better than hardened steel.

Salt spray tests conducted at Battelle reveal that series 600 chrome carbides retain their metallic luster after being subjected to a 30 per cent salt spray for 750 hours.

When subjected to sulphuric acid corrosion tests, the series show 30 times the resistance of 18-8 stainless steels and 3 times the resistance of conventional carbides. Resistance of chrome carbides to nitric acid is 8 times that of other carbides and twice that of 18-8 stainless steel. Chrome carbides are inert when exposed to citric and lactic acids.

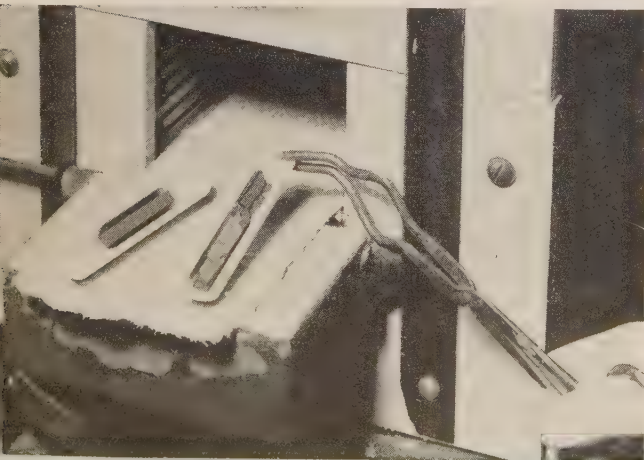
**Oxidation Resisted**—The series

resists oxidation at all temperatures up to 1832° F. When subjected to a temperature of 1850° F. for 24 hours samples of chrome carbide are only slightly discolored.

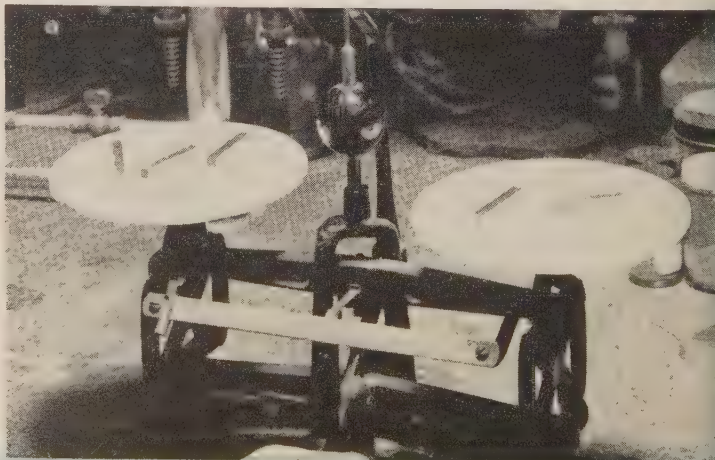
Steam erosion tests show a resistance for chrome carbides about 50 times that of conventional carbides. Samples 1½ inches diameter and 0.250-inch thick were placed ½-inch in front of a 350 psi jet of saturated steam passing through a 1/16-inch diameter nozzle for 25 hour periods.

Four tests of 25 hours each made with different but identical nozzle assemblies show no measurable erosion penetration on the chrome carbide samples after the first three tests.

Maximum average penetration after the first 100 hours is 0.0004 inch. These tests show that the new series are equivalent to other metals with maximum resistance to steam erosion.



What happens to stainless and chrome carbide, right, after 24 hours in 50 per cent sulphuric acid. The new metal's resistance is 30 times that of the other



Four pieces of new cemented carbide weigh the same as two pieces of tungsten carbide. The metal's coefficient of thermal expansion is about like that of steel





Many applications have been made by the new Carboloy chrome carbide as indicated by variety of shapes shown

**What Is Available**—Grade 608 chrome carbide is already available in limited quantities in a variety of shapes for engineering and metallurgical test applications. Production facilities are being expanded to permit delivery of production lots soon.

When production facilities are completed, the new carbide will be available in approximately the same size and shape range in which tungsten carbide is now being offered.

Because costly and critical tungsten and cobalt are not constituents of grade 608, it is expected that complete parts can be made economically of solid chrome carbide in contrast to attaching individual pieces as has been done with tungsten carbide in the past. The light weight of chrome carbide is another factor in favor of this design concept.

**How Made**—Generally the same

methods used in fabricating tungsten carbide are used for grade 608. Components can be molded to shape for standard or quantity parts. They can also be machined economically to required shapes in the presintered condition for small lot production.

Grinding, lapping and polishing of chrome carbide is performed with conventional silicon carbide grinding wheels, diamond grinding wheels and diamond lapping compounds. Polished surfaces of chrome carbide have a more brilliant luster than those of tungsten carbide.

The metal can be joined by brazing, by mechanical means or by thermosetting resin cements. It is necessary to flash plate chrome carbide parts with nickel for brazing with conventional materials.

The results of recent tests with ethoxyline resins as a bonding agent for attaching chrome car-

bide to nonporous materials like metals have been very encouraging. Bond strengths of the ethoxyline resin cemented joints at room temperature are much lower than brazed joints but approximately equal to those of soft soldered joints. In general, resin-cemented joints can be used in place of brazed joints where high strengths are not required and when the application operates at room or slightly elevated temperatures.

Use of ethoxyline resin cemented joints precludes that the surfaces of the carbide and metal be clean. They should be grit-blasted and rinsed clean with a solvent. Although ground or smooth surfaces do not bond well, as-sintered or sand blasted surfaces on carbides produce satisfactory bonds.

**The Bond Strength**—Bond shear strengths of from 5000 to 8000 psi at room temperature have been obtained with ethoxyline cements of several manufacturers using various curing methods. At 200° F bond strengths decrease to half the above values. Prolonged immersion in water weakens the bond about 15 per cent.

Carbide parts that have been attached by ethoxyline resin cements can be removed by heating the joint to 600° F at which temperature the cements decompose and the parts can be easily pried loose. The charred cement can be removed by sanding or scraping.

Thermosetting resin cementing of chrome-carbide parts for wear-resistant applications is often a useful technique especially where brazing is impossible or inconvenient to apply.

**Where Used**—The excellent corrosion and erosion resistance of

## Physical Properties of Cemented Chrome Carbide

(Grade 608)

Hardness	—88 Rockwell "A"	Abrasion Resistance	—Good some less than tungsten but much better than hardened steels.
Density	—7.0 gms/cm <sup>3</sup> (slightly lighter than SAE-1095)	Resistance to Oxidation	—Only a slight surface discoloration after 24 hours in air at 1800° F.
Transverse Rupture Strength	—100,000 PSI	Resistance to Corrosion	—Excellent
Compressive Strength	—Higher than most hardened steels.	Magnetic Permeability	—Non-magnetic
Coefficient of Thermal Expansion	— $6.4 \times 10^{-6}$ in the range of 70°-1292° F.		



the metal combined with good abrasion resistance, point to successful applications in broad fields in industry.

In the chemical field, its resistance to acids and sodium hydroxide indicates that nozzle and control valve components are ideal applications.

In the pharmaceutical and food processing fields, it will also find applications in valves and nozzles because of its resistance to citric and lactic acids. Scraper blades for centrifuges and seal rings for homogenizing equipment are other applications.

The petroleum industry in which valve components must resist abrasive fluids and corrosive liquids containing salts can make good use of grade 608 parts.

Because chrome carbide has about the same thermal expansion rate as steel it is finding wide application in the gage manufacturing field where wear resistance of gaging surfaces and temperature effects of expansion are important considerations. The corrosion resistance of the chrome carbide gaging surfaces is also a factor in prolonging gage surface life.

The completely nonmagnetic properties of the metal mean that it is possible to make instrument components that are nonmagnetic yet highly resistant to wear and corrosion.

Other applications include: Shear blades for molten glass, core pins for baking ceramic parts, fishing rod guides, textile machinery guides, mold components for die casting processes and punches for movie film.

Mechanical parts for all types of machinery that must resist wear, corrosion, high temperatures or erosion are of course 'naturals' for the new carbide.

## Industrial Dermatitis Control

Keeping key men on production line jobs by cutting down industrial dermatitis is the function of a bulletin published for safety and sanitary engineers by Natriphene Co., Detroit. The report presents of the most prevalent forms of dermatitis, names the most common avenues of infection and cites best means of control.

## DEBURRING OUTPUT UP 600 PER CENT

# Automatic Brushing Speeds Gear Cleaning

Unskilled worker using machine brushing setup keeps up with pace set by modern gear cutters. Gear finishing is stepped up from 20 to 125 per hour

PLACE A PILE of gears in front of an unskilled worker and arm him with a hand file to deburr the work, chances are he'll end up processing some 18 or 20 of them. But take that same worker and give him a machine—a brushing lathe and universal workpiece holder—his deburring output will shoot skyhigh.

That's what happened at Caterpillar Tractor Co. in Peoria, Ill., and just about in that manner. Output jumped over 600 per cent.

**Condition Changes** — Up until last September, Caterpillar used hand methods to remove burrs from gear teeth. With the aid of a hard tool, an operator finished 20 gears per hour. Everything was satisfactory.

But the picture changed. Demand for both quality and quantity increased. Something called "costs" also complicated matters.

The result was Caterpillar engineers got together with Osborn Mfg. Co. of Cleveland and came up with a finishing method that enables an unskilled worker to deburr 125 gears per hour. Not only did

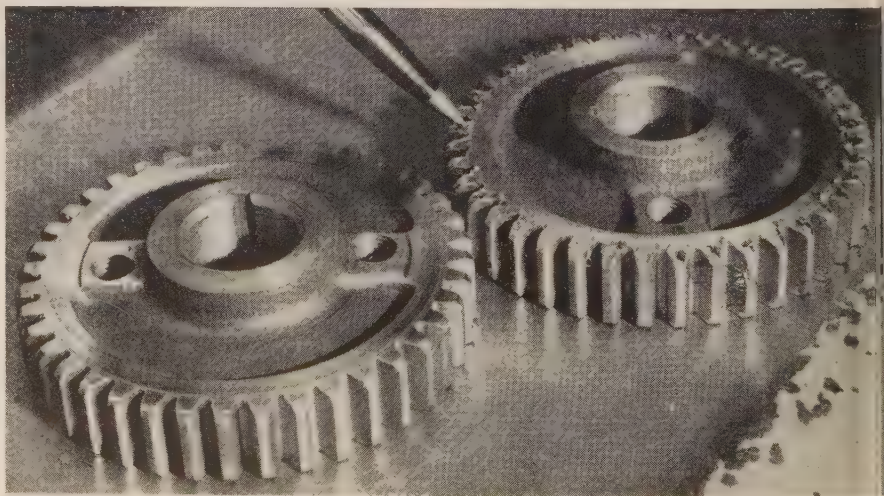
production zoom, but according to the standards set up by the brushed gears, none of the hand finished gears would have passed inspection.

**New Standard Set** — Another bonus was the development of equipment that could keep up with the pace set by modern gear cutting equipment. Deburring no longer is the bottleneck in the fast-moving operations.

Operation of the workpiece holder and brushing lathe setup is easy. The entire job of the operator is placing the gear on the holder and pressing a button. Once this is done, his job is completed until the gear is brushed.

The holder rotates the gear and presents it to the brush. A preset timer retracts the holder and the motion is stopped until again actuated by the operator. Amount of brushing each gear receives depends on the type of gear, metal and surface desired.

**Any Setup Possible**—Quick universal adjustments built into the work holder brushing lathe enable any operation to be set up in a



Gear, left, shows what happens to a gear like one at right after getting machine brushing treatment. Technique created a new inspection standard



short time. The gear is mounted on a fully universal head whose axis can be set in any position. Thus the work can be presented to the brush at any angle to achieve the desired brushing action.

During actual brushing, the work is power rotated against the face of the brushes by a motor drive built into the top slide. During loading and unloading the work arbor remains stationary. As the work is then presented to the brushes, power rotating starts and continues to rotate until the work is withdrawn from the brushes.

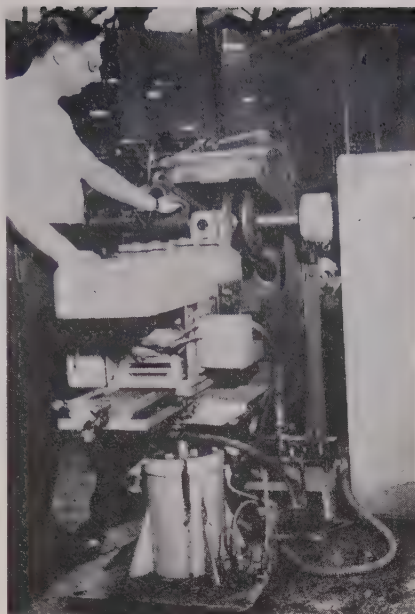
Direction of brush rotation is automatically reversed each time the holder presents the work to the brushes. Reversing of brush direction maintains the brushing strength at a high level over longer periods of time to attain lowest end-of-service cost for each brush.

**Air Power Used** — Correct positioning of the work against the brush is quickly accomplished for any size as well as shape of work and diameter of brush. Operating height is adjusted with an air operated, hydraulic column elevation control. The simple movement of a lever control raises or lowers the column to a predetermined height indicated on a scale. Once set, a lock clamp holds the column in fixed position throughout the production run.

Lateral adjustment for setup purposes is attained with a screw type feed. The lateral feed slide, accurately scraped in assembly as on other machine tools, has adjustable slide gibs to maintain precision fitup. A scale on the slide indicates position of the work in relation with the brushes.

**Work Pushed Just Right** — In-feed slide adjustment, similarly constructed to the lateral feed slide, provides for setting the work against the brush faces at exact pressures found most suitable for the work. Once determined, the brushing pressure, clearly visible on the brush pressure indicator, can be maintained accurately throughout the run.

Any compensations in in-feed position needed as the brush wears are made with the in-feed slide adjustment bringing the brush pressure indicator to its original dial setting. Under actual operation,



Deburring gears on this setup at Caterpillar's Peoria plant is easy. Entire job of operator is placing gear on workholder and pressing a button. Preset timer retracts holder

the top slide holding the workpiece is rapidly advanced to the brushing position, held there during brushing, then withdrawn by the use of an air operated cylinder.

Any time cycle from 2 seconds to 4 minutes needed for deburring, is easily preset by the cycle time set up control box. Accurate duplication of brushing time on each workpiece thus avoids the possibility of overbrushing or underbrushing. In setup, each phase of the cycle can be controlled individually for maximum simplicity and safety.

**Stops Are Fast**—Versatile brushing pressure helps achieve efficient brushing action on each individual job. The spindle is mounted on anti-friction bearings and driven by multiple V-belts. For fast, efficient operation, a built-in electric brake stops the spindle quickly at the end of each brushing cycle. This prevents the operator from contacting the rotating brushes as the work is being loaded and unloaded.

Quick, easy mounting of brushes onto the brushing lathe spindle is made possible by a lock that prevents the spindle from rotating while the holding nut is loosened or tightened.

**Other Advantages**—By produc-

ing a uniform, rounded edge and blending the gear tooth corner, power brushing with the lathe avoids much of current troubles found in machine parts that fail from stress concentrations and resulting progressive fractures. In addition, the removal of small metal particles left by cutting tools minimizes the dangers of such particles becoming loosened during service and clogging lubrication systems.

In surfacing parts, power brushing becomes essentially a blending of surface irregularities rather than actual removal of metal. By varying the type of brushes and auxiliary compound used, surface finishes of 24 to 35 microinches can be refined to as little as 4 microinches.

## U. S. Lathe Specs Approved

More than superficial checking is necessary to maintain the high degree of accuracy required of today's lathes. So says J. H. Meyers, vice president of Lodge & Shipley Co., Cincinnati, in the July issue of "Standardization."

That, he continues is why standards of accuracy for engine and tool room lathes have been developed recently and approved as American standard. The user can now check his lathe from time to time against minimum standards of accuracy and alignment.

National Machine Tool Builders' Association, cosponsor of the sectional committee on small tools and machine tool elements that processed the standard, prepared the specifications after studying European standards and individual specs used in the U. S. Other sponsors of American Standards Association's committee B5 are the Society of Automotive Engineers, Metal Cutting Tool Institute and American Society of Mechanical Engineers.

Every phase for testing the lathe is covered in the new guide. It provides a set of tolerances for lathes 12 to 18 inches, 20 to 32 inches and 40 to 72 inches. A 36-inch size, included in an earlier American defense emergency standard adopted during World War II was dropped by all makers and not included in the 1952 edition.



# OUTSIDE FACILITIES EXTEND SCOPE OF INDUSTRY RESEARCH



**Basic and applied research problems of many companies are being solved by universities, trade associations and government agencies**

By BENJAMIN MELNITSKY

THIS YEAR many companies will send their industrial research problems to colleges, trade associations, or government agencies. These external sources of industrial research are far more significant than may generally be realized.

The director of Lobund Laboratories at Notre Dame University points out that in a single year over 300 firms provided 1800 scholarships or grants-in-aid to 120 colleges and universities at a cost of \$22 million. The *New York Times*, on the basis of a study made at the end of 1949, ups the cost figure to an impressive \$25 million and then notes that this sum is five times greater than that spent yearly before World War II.

This figure is dwarfed by that for trade association research. The research chief of the American Gas Association estimates that from 20 to 30 per cent of all industrial research (whose annual value is well over ½ billion dollars) is conducted co-operatively through associations. The American Trade Association Executives surveyed its membership and found that 65 per cent of the associations responding did "conduct research of some kind

or another." To a lesser degree, various state farm stations, the National Bureau of Standards, the U.S. Department of Agriculture and other federal bodies serve private industry in the solution of research problems.

**Lower Cost**—There are many reasons why private industry should look to these three sources for partial solution of its research problems. Chief among these is cost. The firm which cannot set up its own research laboratory can, for as little as a few hundred dollars, turn over its problem to the local university. For this moderate fee, costly research equipment and skilled scientists are placed at its disposal. There's no limit to the type of research work done in schools. Most everything concerned with industry — from packaging fresh fish for air transport to eliminating "bugs" in the finished product—is a legitimate subject for investigation by university laboratory staffs.

In the trade association and government research fields, the general practice is to limit investigations to problems of broad, general interest. The concern seeking the

best container for a product which it alone manufactures will receive little help from its association and none from the federal government. However, ample aid will be forthcoming should the packaging problem be common to other members of the industry and to other industries as well.

**Fills Basic Research Needs** — Even more valuable, from the long range viewpoint, is the fact that government, associations and universities fulfill a function which private industry cannot perform alone. Here we are speaking of basic research, the investigation of fundamental principles or laws underlying the science on which a particular industry is based. The president of one of the nation's largest pharmaceutical houses stated recently that more than 95 per cent of the modern chemical industry is based directly on university research. The same statement can be made for many other industries.

Basic research is apparently not the job of private industry judging from a recent National Association of Manufacturers' survey. Less than 7 per cent of the companies queried conducted such studies. The



EXTERNAL SOURCES FOR INDUSTRIAL RESEARCH CAN MEAN EVENTUAL PROFIT TO THE INDIVIDUAL CONCERN ONLY IF MEASURES ARE TAKEN TO UTILIZE THEM. HERE ARE SOME STEPS TO TAKE:

1. Know the nature and extent of co-operative research conducted by associations to which your company belongs. Check with association secretary and determine work being accomplished by research committees.
2. Know the type of research being done by associations in other industries and obtain reports and bulletins pertinent to company activities. For names and addresses of trade associations use such publications as "Trade Association Industrial Research," U. S. Department of Commerce, Office of Domestic Commerce, Industrial Series No. 77; "Trade and Professional Associations of the U. S.," Bureau of Foreign and Domestic Commerce, Department of Commerce. A call to the nearest field office of the Commerce Department will result in information on addresses and research activities of most associations.
3. If company's association is inactive in the research field, aid in establishing research committees. Advice on launching association research is obtainable from National Research Council in Washington. Armour, Battelle and other research foundations provide such services for moderate fees.
4. Devise means for routing research bulletins through the company. Set up methods for insuring that pertinent information will be seen by all interested persons.
5. Contact local and state colleges to determine nature of research services offered. For data on this use "Directory of Commercial and College Laboratories," Miscellaneous Publication M187 National Bureau of Standards. In New York, the Department of Commerce, 112 State St., Albany 7, issues a "Directory of Research and Development Facilities at Educational Institutions in New York State Available to Industrial Concerns." Similar listings may be obtained from commerce departments in other states.
6. Consider supporting colleges through scholarships and grants to the schools' general fund.
7. Utilize federal research help through the trade association. Suggest that industry-wide problems be submitted to suitable government bureaus by the association.
8. Check with state government to determine extent of research aid available. In Vermont, for example, the Bureau of Industrial Research offers its services to all concerns in the state.

typical large concern with its average \$2,500,000 research budget will spend a mere \$100,000 on basic research—this according to a survey by the Standard Oil Co. of California of research at nine giant concerns. Such sums are completely inadequate since fundamental scientific investigation is costly, requires years of effort, and may produce little more than material for a short article in an obscure scientific journal.

**Many Benefits**—Yet, when basic research pays off, it does so spectacularly. The benefits of fundamental investigations are most

clearly evident in the field of engineering materials. Du Pont's altruistic investigation into high polymers paid off fabulously with the development of nylon and other new plastics. Basic research which has lead to the development of titanium was, in large measure, the job of the Bureau of Mines which, in its own words, "has pioneered the work of preparing ductile titanium on a large scale and has also determined basic properties of this metal." Similar fundamental studies on helium, zirconium, synthetic liquid fuels, and others are being made by this bureau.

Trade association interest in fundamental research is based, in large measure, on the old saw that the "Lord helps those who help themselves." Certainly the soft coal industry would be in a deplorable state now if it depended on others to discover new mining methods and new markets for its products. Equally as certain is the fact that this industry could not have weathered several serious technological upheavals had it buried its nose deep in its mine pits and disregarded basic research.

**Markets Grow**—In the last few years, diesel engines have replaced coal-burning locomotives; oil-consuming industrial furnaces have assumed the job once held by soft coal heating units; water power has replaced coal-created energy in various parts of the country—the industry has lost one major market after another. Yet, production of soft coal continues to increase well over prewar levels.

A large share of the credit for this remarkable progress must go to Bituminous Coal Research Inc., which is the product and sales development arm of the coal and allied industries. In common with other co-operative research organizations, it farms out many of its projects to universities, non-profit research foundations, government agencies, and, in some instances, to the industrial research laboratories of private companies.

One such project is the development of a coal-gas burning turbine for use particularly in railroad locomotives. Its cost is over \$1 million. Other studies are concerned with such basic problems as the development of smokeless combustion, pulverization and gasification of soft coal

Despite its importance, basic research seems far removed from the daily problems of most industrial concerns. The obvious and pressing need is for applied research which concerns itself with: Creation of new products, development of substitute and alternate materials, reduction of processing difficulties, utilization of by-products, elimination of production bottlenecks, improvement of product design—in short, with those activities which contribute directly to



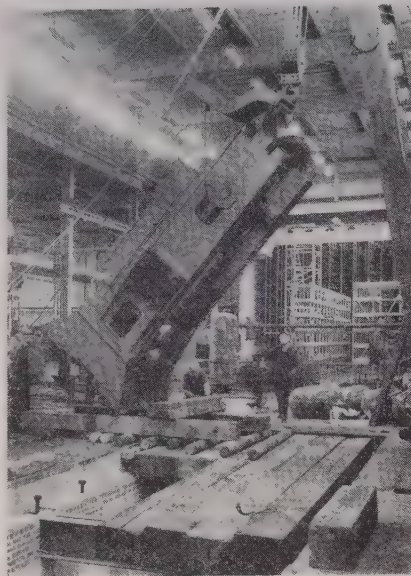
increased production, greater sales, and higher profits.

**Mutual Aid Societies**—Fundamentally, all associations—whether social, political, or industrial—are mutual aid societies. For companies today the best form of mutual aid is in the field of research. "Research is a major field of association endeavor," the American Trade Association Executives states and then goes on to explain that of 106 associations which it questioned, "over 90 per cent do conduct technical and applied research and 43 per cent carry on research in the discovery and invention field." Technical and applied research covers a wide variety of subjects. Thus, the American Gas Association develops and designs kitchen broilers, air conditioning units, home refrigerators, and industrial furnaces.

In the "applied" category is the \$50,000 project at the University of Illinois sponsored by the National Warm Air Heating and Air Conditioning Association. At the university, the operation of warm air installations under actual living conditions was checked by the expedient of building two complete houses. Another example is the American Iron and Steel Institute rigidized sheet steel research project at Cornell. The project holds promise for increased use of this steel product in home construction.

**Applied Research**—Federal and state governments are the least known external sources for applied industrial research. Despite the obvious and necessary emphasis by government on basic research, there are many federal and state undertakings which are truly in the category of applied research. Synthetic cork was developed by the Department of Agriculture working co-operatively with a large number of private companies. The new "cold rubber" which shows a remarkable improvement over standard synthetic rubber for tire tread stock is a new development for which the Reconstruction Finance Corp. is largely responsible.

Industry is benefiting in several ways from the atomic energy program. Perhaps the most important development is the use of radioactive materials for tracer re-



### Moving Time at American

As part of the big job necessary before beginning operations in its new plant, American Stamping Co., Cleveland, moved 45 electrically-driven stamping presses. Sizes ranged from 20 to 1000 tons capacity, plus about 1000 tons of dies. Seen above is a 350-ton press being set into position

search in chemistry and metallurgy. Training courses in radioisotope research techniques are being conducted continually at Oak Ridge, Tenn., by the Oak Ridge Institute of Nuclear Studies. Industrial personnel can take these courses which last about a month.

For some types of research problems it is necessary to irradiate preformed material in the nuclear pile. These so-called service irradiations can be obtained from Isotopes Division, U. S. Atomic Energy Commission, Oak Ridge, Tenn. Not long ago one laboratory doing research in the lubricating field had ordinary piston rings irradiated to make "precise studies of piston wear under various conditions.

A good deal of research and development work done for the atomic energy program has industrial application. Some of this work is, of course, secret and is not published. Much of it is entirely unclassified. Lists of declassified papers now available can be obtained from the Document Sales Agency, Box 62, Oak Ridge, Tenn. The AEC also publishes a periodical called *Nuclear Science Abstracts*, which contains brief

notes on important published research in various field allied to atomic energy done both in commission laboratories and in non-project laboratories.

## Topic: Large Forgings

SYMPOSIUM to emphasize to aircraft design engineers the need for expanded utilization of larger and more complex forged and extruded structural components in forward aircraft designs, will be held as part of the next annual meeting of the American Society of Mechanical Engineers in New York this December.

All principal elements involved in the problems of the creation and the use of such new components will be presented.

**Who's Taking Part**—Four national technical societies plan to co-operate in the symposium in order to cover effectively such a wide field and arrive at a common understanding. These are: American Society of Mechanical Engineers, American Institute of Mining and Metallurgical Engineers, Institute of Aeronautical Sciences, and the Society of Automotive Engineers.

Five key papers will be presented at the symposium by George W. Papen of Lockheed Aircraft, Dr. Morris Stone of United Engineering, Thomas L. Fritzlen of Reynolds Metals, George Motherwell Wyman Gordon and T. F. McCormick of Alcoa.

### Shear Cuts 24-Foot Plate

Squaring shear capable of cutting 24 feet of 1/4-inch mild steel plate—said to be one of the longest produced in U. S.—has been completed for Douglas Aircraft Co. at Lakewood, Calif. plant.

Manufacturer, Cincinnati Shaper Co., reports the shear weighs about 149,000 pounds. It has a 20-stroke per minute cutting cycle and hydraulic hold-downs are capable of exerting more than 22 tons pressure for securing the work.

Additional features, says firm, are a 24-inch throat or gap, 48-inch back gage range and a light beam shearing gage. Air clutch control is equipped with two foot valves.

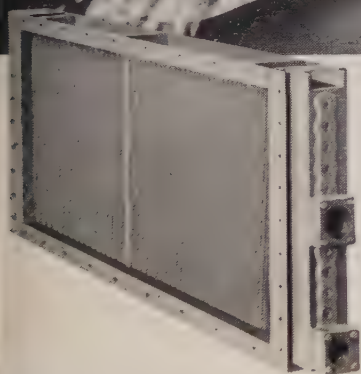


# Revere-Trained Copper

## HELPS TRANE CONTROL HEAT!



Trane Kinetic Orifice Tube. Orifices eject steam in direction of condensate flow, materially increasing efficiency, getting more heat out of the steam. Specifications for this copper tube were developed mutually by Trane and Revere.



Trane Type SDS Coil containing Kinetic Orifice Tubes, for heating use.

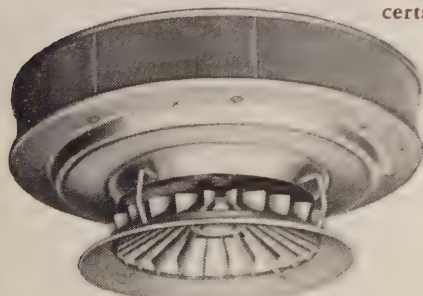
One of Revere's customers is the famous Trane Company, which makes heating, cooling and air-conditioning equipment for home, industrial, marine and similar applications. Trane relies on copper for tubes, because of high heat conductivity, resistance to corrosion and easy workability.

Like so many other Revere friends, Trane maintains close relations with the Technical Advisory Service, collaborating with it in developing specifications, studying specific corrosive conditions, and other matters of mutual interest.

For example, take the Kinetic Orifice Tube, a Trane design to overcome certain old handicaps found in the

tube-within-a-tube steam distributing system. The Kinetic Orifice utilizes a jet action to accelerate the flow of condensate by discharging the steam in the direction of condensate flow. To produce such orifices in a copper tube requires a combination of shearing and flaring, and at first it was thought that the temper required for these operations would be so soft as to make it difficult to maintain the required straightness. However, study by both organizations finally developed a temper both workable and strong, now proved by several years of use.

If you are not now collaborating with the Revere Technical Advisory Service, perhaps it would be to your advantage to do so. Call Revere.



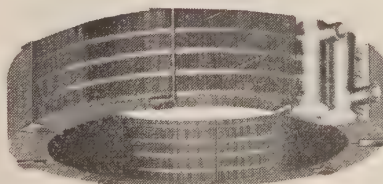
Trane projection-type Unit Heater employs copper tubes for both high pressure and low pressure work.

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Coil for projection-type Unit Heater. The easy bendability of copper tube is a decided asset in forming the circular coils.





Inventor Charles B. Buker, at left, demonstrates simplicity of Flex-Test on sheet that has just been passed through the roller levelling machine

## Steel Drawability Measured in a Minute

**Two instruments developed at Jones & Laughlin give basic steel industry, fabricators, warehousemen quick method of indicating bend resistance and strain behavior of steel sheets**

FOR YEARS, Charles B. Buker, contact metallurgist on sheet and strip for Jones & Laughlin Steel Corp., watched stamping press operators in various stamping plants bend up with their hands the corners of steel sheets ready for drawing.

He did it himself, countless times.

Though hand bending the sheets was not used as a test, operators and die setters and quality control men knew that the easier the steel was bent, the better the draw.

It set Charley Buker to wondering.

**Could It Be Done** — Could a method be devised to bend up the corners of the sheets mechanically, and an accurate measurement made of the metal's resistance to the bend right on the job. Mulling over the idea, he boiled it down into sketches and the sketches finally landed in the research laboratory.

The result: The Flex-Tester—an instrument which by measuring

resistance to bending gives an accurate measure of the drawing quality of cold reduced sheet and strip steel; and a spherometer, adapted to measure the diameter of the bend in the sheet. The latter makes an accurate determination of a material's susceptibility to stretcher strain during the drawing process.

**Tests Are Fast** — Making a test with both instruments takes about a minute. In a stamping plant as many blanks as desired can be tested before drawing without destroying any of the material. Little training of operators is required. To get test readings corrected for thickness of sheets, the operator needs only to use a micrometer, then refer to a conversion table.

Besides its application in stamping plants, the Flex-Test can be used also in strip mills. A series of tests can be made along the length of the strip at the temper mill. With the mill stopped momentarily, an 8-inch slit can be cut in the edge of the strip with a

hand shear, and test readings taken.

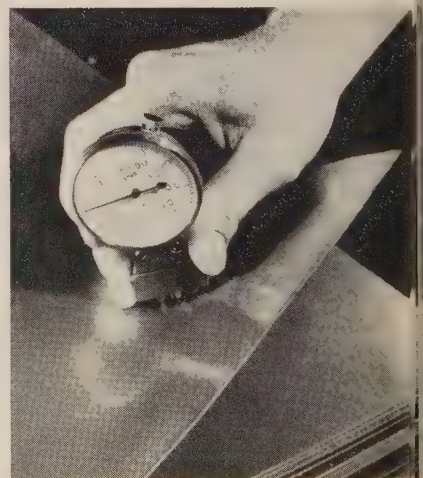
**A Year's Work**—Development of the instruments required better than a year. It was John R. Speer of the metallurgical research division of J & L's general technical department who worked with Buker. They made hundreds of tests on mill samples, both in the as-annealed state and as-tempered rolled to known percentage of elongation. Results were compared with existing standard tests such as Rockwell, cup test, yield point, tensile strength and elongation.

Now it appears that the J & L men have contributed to the basic steel industry and to steel fabricators and warehousemen a technique that can take its place with other quality control methods.

Here's how the instruments are used: Using the Flex-Tester, the operator bends back a corner of the steel sheet and the resistance to the bend is measured on the dial of the tester. A reading of 60 or lower indicates good drawability of the sheet.

After the Flex-Tester reading the spherometer is used. This measures the diameter of the bend. The smaller the diameter, the greater the tendency to stretcher strain—the appearance of "worms" or "orange peels" on the surface—during the draw.

**Saves Rerolling** — If the spherometer shows a large bend diameter, about 3-inches or greater, there will be no tendency to



Spherometer here is used to measure diameter of bend. Smaller the diameter, greater the tendency for metal to stretcher strain during drawing





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stretcher strain, and the degree of stretcher strain will be inversely proportional to the decrease of the bend diameter. This information can eliminate unnecessary roller-leveling to relieve strains, or it can indicate when the operation is necessary.

In occasional cases failure may occur in stamping sheets, through no fault of the steel. For example, J & L says, in some of the tests the

Flex-Tester readings indicated that steel would draw satisfactorily, yet failed in stamping. It was found that readjustment of the die successfully accommodated the material.

Since applying for a patent on the Flex-Tester, arrangements have been made with Steel City Testing Machines Inc., Detroit, to make both instruments available to industry.

## Stainless Inserts Aid Furnace Design

IMPROVED product design and solution of a serious maintenance problem in induction furnaces for foundry, die casting and similar applications are twin benefits being realized at Ajax Engineering Co., Trenton, N. J. Power rating of these furnaces made by the company is from 20 to 1000 kw.

Furnaces consist of: An inductor unit housing induction coils carrying up to 2000 amp and a main housing up to 100 x 60 x 140 inches containing the hearth. The two sections are joined along machined faces by 10 to 20 bolts, ( $\frac{5}{8}$ -11 or  $\frac{3}{4}$ -10) depending on the size of the furnace and its attached inductor.

**Keep It Simple**—Because it is sometimes desirable to change or replace inductor units, ease of maintenance dictates that disassembly be simple and rapid. Flanges able to accept bolts and

nuts would have introduced undesirable design elements. The two elements of the furnace would be separated by 3 to 4 additional inches. Also, it would add considerably to the cost of the weldment.

Accordingly, cap screws are used in tapped blind holes. In use these fasteners are exposed to temperatures in the neighborhood of 200° F and are in close proximity to an intense magnetic field.

In early models attempts to remove cap screw after the furnace had been in use for a considerable period met with a high proportion of failure. Often the screws seized in the threads and would twist off in removal. The resultant cost in man-hours and increased downtime needs no elaboration.

**Right Solution**—Seeking to avoid this seizing, Ajax experimented with various classes of fits and

tried brass bolts but neither expedient produced any improvement. The next and successful remedy was using Heli-Coil thread inserts made of stainless steel wire precision formed to a diamond shape section. Adoption of the inserts followed elimination of the seizing trouble.

Performance of the inserts in high heat applications where ordinary bolts became decarburized and brittle was not unexpected. Beyond that it is the opinion of Ajax engineers that some early troubles may have stemmed from action of the magnetic field on unprotected bolts. It is considered possible that bolts threaded in Heli-Coil inserts resist this action because they are shielded in a sense by stainless steel which is only slightly magnetic.

## Bar Setup Cuts Taper Time

PRODUCING a long taper bore has always been a difficult and expensive machining process, requiring several passes. Any slight error results in a poor fit with bushings on other mating parts.

Henry & Wright, Hartford, Conn., dieing machine manufacturer, meets this problem by using a special multiple cutting roughing bar and a floating taper cutter held in a special bar. Both tools are designed and manufactured by the Madison Mfg. Co., Muskegon, Mich.

**Saved: 18½ Hours**—The tools are made to eliminate individual turning and hand fitting of every bushing, necessary before with the cam type boring bar. Number of passes is reduced to two. Henry & Wright report a total saving of 18½ hours combined machining and hand fitting time on each dieing machine frame.

In this operation, work remains stationary while bars revolve. Roughing bar ste-bores the casing. In the second pass, the floating taper cutter in a special bar finish reams the stepped bore to size. Cutter's floating action produces the accurately sized and tapered hole required. The two-blade principle is said to insure good finish and eliminate possibility of chip scoring the surface.



INDUCTOR UNITS CHANGED READILY

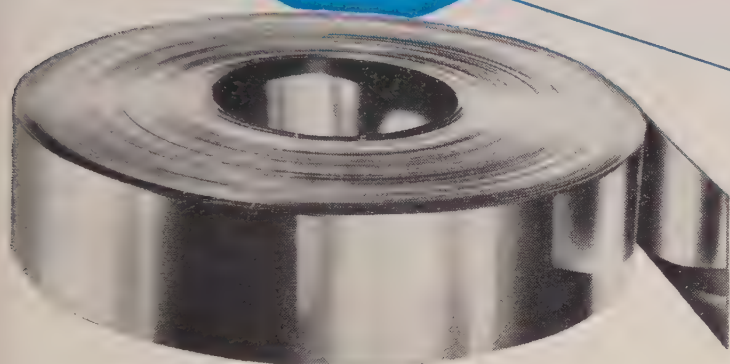
... bolt seizure and breakage problems licked



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Particularly in the 300 series stainless grades you can have sizes, finishes, and physical properties not commonly available. As an example, you can specify 18-8 stainless in dead soft temper, with a mirror finish on both sides; or strip with total gauge variation from edge to edge held to less than 25% of standard; or strip as thin as .001"; or strip with hi-tensile values well over 200,000# PSI.

If Government Controls or Restrictions force consideration of substitutes for the nickel-bearing 300 series, perhaps we can assist you in developing one of the CMP 400 chromium series as a satisfactory replacement. Type 430, for example, is now commonly substituted for various end uses which formerly involved the 300 series.

So—if you have a difficult stainless strip problem why not check with CMP right now. You'll find prompt and interested attention.



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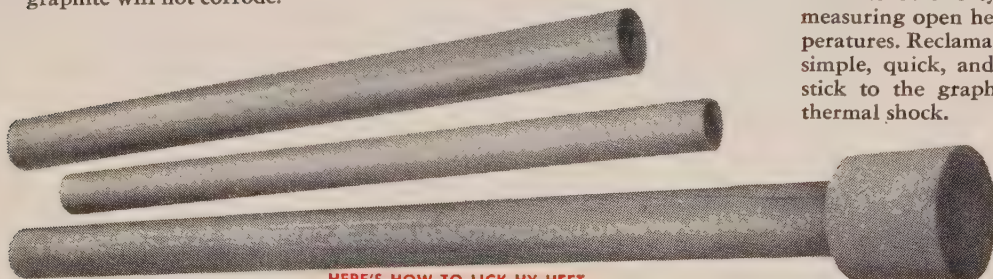
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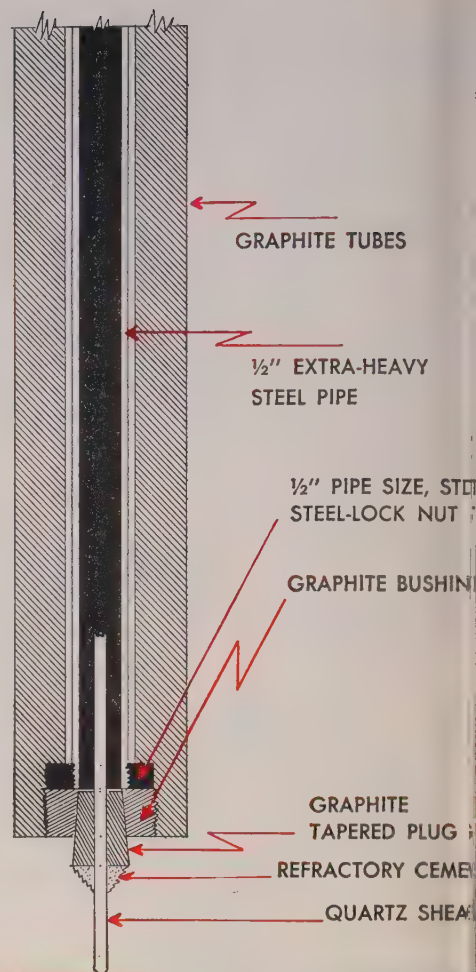
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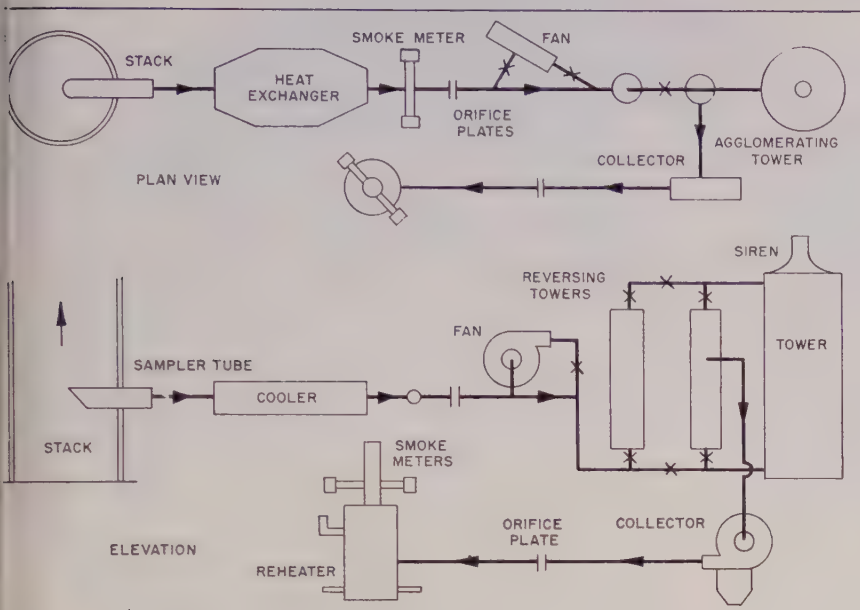
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Layout of equipment for determining amount of dust leaving furnace stack

By S. VAJDA  
Office of Chief Engineer  
and  
G. M. DREHER  
General Technical Department  
Jones & Laughlin Steel Corp.  
Pittsburgh

Different types of heats are made in this furnace such as: Regular scrap, duplex, semiduplex, etc. As a result, the dust characteristics and loading varied considerably as did the duration of the different parts of the heat. Tests have shown over 110 per cent excess air at the base of the stack for this furnace. Consequently, the dust concentrations are approximately 1.0 grain/cu ft maximum. The new furnaces are expected to have 25 to 60 per cent excess air.

Gases as shown in the accompanying layout were drawn out of the stack with a movable scoop through a gas-to-water heat exchanger by an exhaust fan at a maximum rate of 3000 cfm and discharged into the cleaning unit being tested. The clean gases then went through a reheater into a stack.

The 20-inch sampling tube had a 45° cut on the intake end and could be moved in or out of the stack to insure getting a representative sample. Hydraulic water was used on the heat exchanger to reduce the gas temperatures to as low as 300° F.

**Prevented Recorder Readings—**The reheater equipped with coke oven gas burners was added with the thought of keeping the gas temperature at the outlet smoke density meter the same as that of the inlet. This was good in theory, but it was found that other factors such as dust color, shape, size, etc., and steam and water vapor prevented the recorder readings in each test or of different tests from being directly comparable. The only comparable indices are the grain loadings which can be superimposed on the meter readings. Ultimately, the chief function of the reheater became the reduction of

## Investigates Methods for Capturing Dust in Gases

Pilot tests conducted at steelmaking shop in Pittsburgh district appraises methods of controlling the amount of dust in gases exhausted from the stacks of open hearths

DUST discharged from open-hearth stacks is principally ferric oxide, finely divided, most of it submicron in size, and is distributed over wide areas. A 225-ton open hearth normally will discharge about 75 pounds of dust per hour or less than 1 ton in 24 hours.

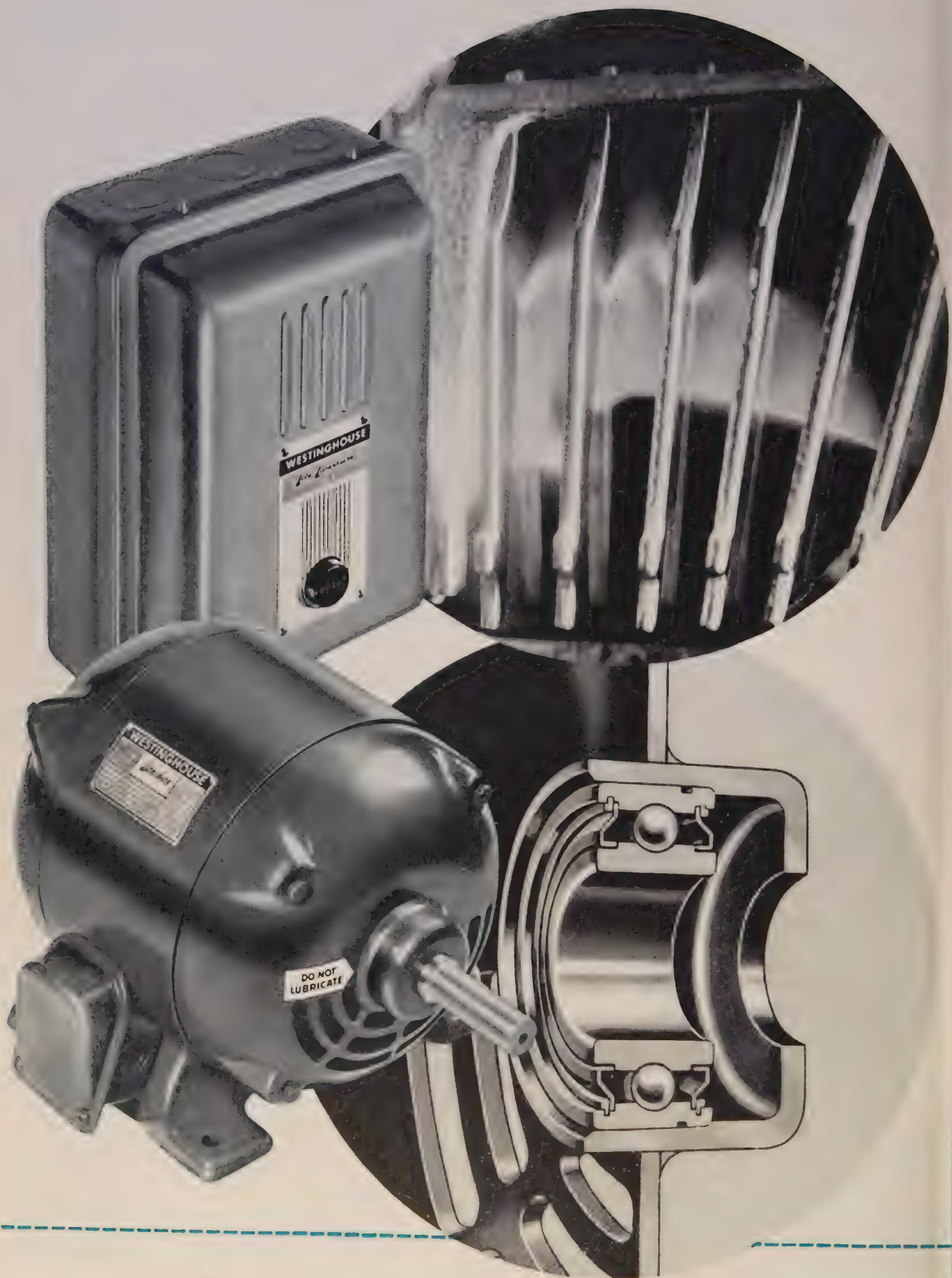
Present city and county smoke ordinances state that a stack will not discharge gases with a dust loading in excess of 0.454-grain/cu ft at 60° F with 50 per cent excess air. Existing stacks are within this limit more than 80 per cent of the time. Experiments on bessemer dust and those on open-hearth dust on the West Coast indicate that the outlet dust loading must be down to 0.05-grain/cu ft to give a clear stack. Above this loading, a bystander cannot tell

whether there is a cleaning unit on the stack or not.

**Starts Pilot Tests—**As Jones & Laughlin Steel Corp. was expanding its steel production facilities at the Pittsburgh Works with the installation of 11 new 250-ton open-hearth furnaces it was decided to conduct a series of pilot plant tests in an effort to find some practical, reasonable method of reducing the amount of dust discharged from an open-hearth stack.

All tests were run on a tilting type furnace producing an average of 225 tons per heat with an average fuel rate of 425 gallons of tar per hour. On some of the tests, Driox was used for combustion. Driox was used for lancing at the end of all heats to reduce the carbon.





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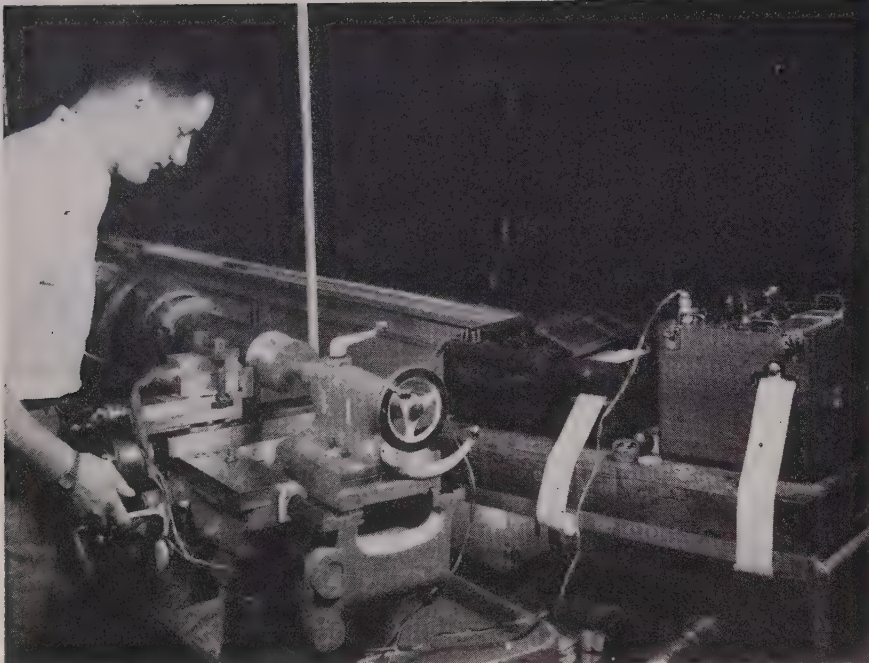
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## Testing Proves Wax-Type Cutting Oil Thinnest of All

Lathe force tests made at University of Michigan were valuable in developing a wax-type cutting oil, Wax-cut, by S. C. Johnson & Sons Inc., Racine, Wis. Technician above is using a wire-resistance strain gage dynamometer to test degree of force required to push into and part different metals. Lubricant is free from chemically active additives; will not stain nonferrous metals or damage bearings

excessive condensation in some of the tests.

In the sonic test by means of a series of goggle valves and two towers, we were able to make the gas flow up or down in the agglomerating chamber. All cleaning units used the same setup except that these towers and the chamber were short-circuited.

Throughout the entire experiment, an attempt was made to reduce the uncertainties of the human element by using recording instruments. Bailey smoke density meters were placed in the clean and dirty gas lines and connected to recorders. Orifice plates to measure flow were placed in the same lines and also connected to recording flow meters. The differences between the two volumes gave us a check on the amount of air and steam or water vapor added into the system. Meters were also placed on the water, steam and air supply lines. The latter two also had recorders. Ten iron-constantan thermocouples were inserted throughout the system and connected to two 5-point Micromax temperature recorders mounted on a central panel board.

Eleven manometers indicated the pressure drops across the various

parts of the system and served as a check on clogging in the various sections.

**How Samples Were Taken**—Dust samples were taken with a Brady paper thimble. This is essentially a "grab" method of dust sampling, to find the dust load in the gases. A measured volume of gas is drawn out of the duct by a sampling tube and pulled through a paper thimble, which collects the dust. The thimble is dried and weighed before and after the sampling. Knowing the volume of the gas sampled and the weight of the dust collected, the loading per cubic foot can be calculated.

In some tests a heater had to be used on the sampling line, and in others, a condenser. In the beginning 15-minute samples were taken, but the dust loading was so light and the results so erratic, that the time was increased to one hour. Excess dust is made during the meltdown and hot metal addition, toward the end of the ore boil, and at the end of the heat during carbon reduction with a Driox lance. An attempt was made to take simultaneous inlet and outlet dust samples during each of these periods. Both wet and dry type meters were used. At first, vacuum pumps

were tried but they quickly broke down. Compressed air aspirators made from pipe fittings were substituted.

**Test 1, Sonic Unit**—This consisted of a siren run by air or steam; an agglomerating chamber in which the dust particles are exposed to the sound waves; a mixing nozzle which adds water particles in the above chamber—thus increasing the probability of the dust particles colliding and agglomerating; a secondary cleaner which separates the agglomerated dust from the gases.

The term ultrasonic is a misnomer. The range of the siren is 0 to 2.2 kc which is a very shrill sound. It must also be pointed out that the sonic unit does not collect any dust; its sole object is to make the dust particles larger so that a secondary gas cleaner will be able to collect the dust more efficiently.

The first collector tested with the sonic unit was a type D Rotocloner. This is a combined cyclone, dust separator and dust collector. The centrifugal force imparted by the fan blades to separate the dust from the gases. Several tests were run with the type D alone, both with and without steam and water added to the system, so as to be able to determine the actual effects of the siren.

The siren was run with air at 9 to 15 psi and later with steam with the thought that the steam might help agglomeration. For the same reason, steam or water and air were injected in various parts of the system. Exploratory runs were made during which the sound frequency and air pressure were varied. A false bottom was placed in the agglomerating chamber to vary its length and thus vary the sound intensity. At first, no special precautions were taken to insulate the system against the sound waves, but the noise proved so objectionable that testing had to be stopped and the equipment was covered with hair felt.

From this test, it was learned that:

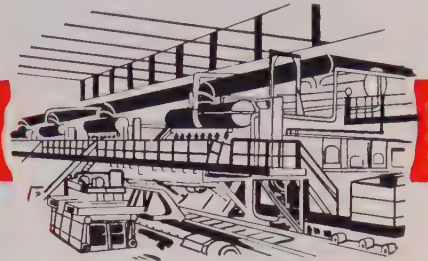
1. The cleaning efficiency for the sonic unit with or without type D was approximately 10 per cent without steam or water and approximately 55 per cent with steam or water added.
2. The gas-to-water heat exchanger



ask the men who operate them



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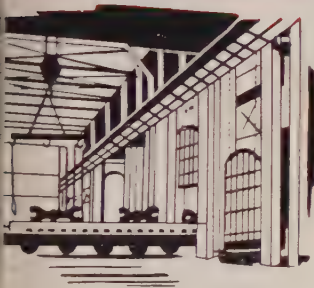
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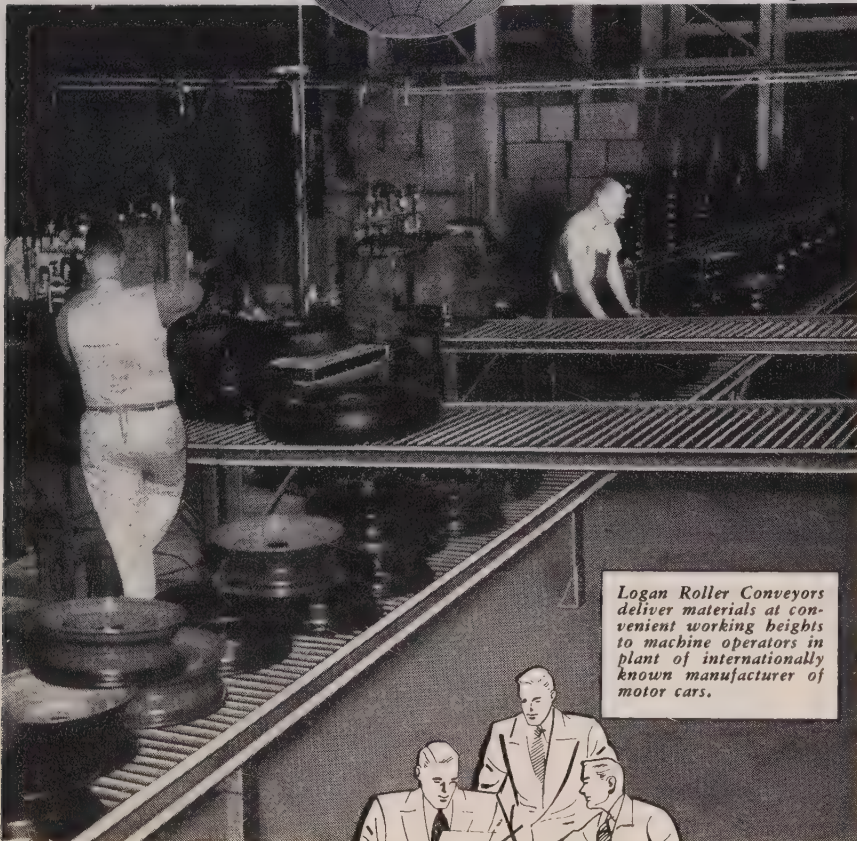


*Furnace Design*



# HOW

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# 4

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# Logan Conveyors

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er must be kept absolutely dry. If excess moisture in the gases condenses, the tubes become coated thus losing efficiency and eventually clogging the unit. The gas must pass through the tubes to facilitate cleaning.

3. The dust wets readily with steam or water.

### Test 2, Sonic Unit with Type W

**Rotocloner**—Although J & L was not interested in a wet collecting system, they permitted the Ultrasonic Corp. to run tests on it with a type W Rotocloner which is similar to the type D, except that water sprays have been added to wet the dust particles and wash the fan blades.

The setup was identical to the previous test. The type W uses water in its sprays at 40 psi. Water was also injected at the base of the agglomerating chamber. The dust was collected as a slurry. Ultrasonic used their own light meters to measure the smoke density and had the Brady thimbles weighed according to their own directions.

Data from this test indicate:

1. Ultrasonic shows an efficiency of 90 per cent for this combination—based on one Brady sample. The type W Rotocloner alone has an efficiency of approximately 45 per cent.
2. A modern gas washer would give us the same end product—slurry.
3. Condensation in the stack was excessive. The clean gases would have to be reheated.

**Test 3, Multicloner**—This is a cyclone type tube collector with inlet guide vanes which impart a circular motion to the gases. The dust separates from the gases by centrifugal force and collects at the bottom of the tube. The tubes are 6 or 9 inches in diameter and the desired capacity is obtained by grouping them in clusters. A 21 tube unit with 6-inch diameter tubes was tested.

The unit showed such surprisingly good results on bessemer tests (76 per cent efficiency) that it was decided to try it on the open hearth gases. A pressure drop of 4 inches H<sub>2</sub>O was carried across the unit. The manufacturer recommends dropping this to 2½ inches H<sub>2</sub>O, stating that the increase in efficiency gained by the higher drop does not justify the additional





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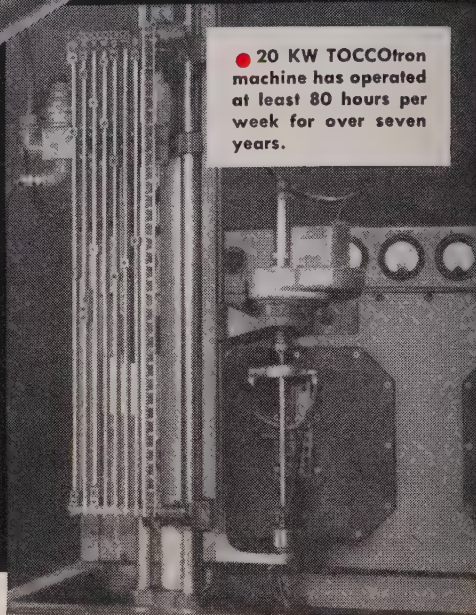
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OLD METHOD		TOCCO METHOD	
Operation	Min./100 Pcs.	Operation	Min./100 Pcs.
Assemble on plating racks . .	23.0	eliminated	
Copper plate crank end . . .	43.0	eliminated	
Remove from plating racks .	15.0	eliminated	
Harden shaft and		TOCCO harden	
anneal crank . . . . .	120.0	and clean . . . . .	92.5
Strip lead . . . . .	10.0	eliminated	
Strip copper and clean . . .	33.3	eliminated	
Old method		TOCCO method	
total time . . . . .	244.3 minutes	total time . . . . .	92.5 minutes

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cost necessary for this operation.

Data from this test accented the following:

1. The unit was good for only 43 per cent efficiency with a 4-inch H<sub>2</sub>O pressure drop.
2. A mechanical collector by itself will not give sufficient cleaning. It could possibly be used in series with a precipitator to reduce the load on the latter. Later discussions with the precipitator makers revealed that this was not feasible. The precipitator size is determined by the exposure time required by the smallest dust particles. Removal of the large particles is of no particular help with our light dust loads.
3. Its major advantages are: Trouble-free operation, no adjustments to make, no controls to operate.

**Test 4, Trion Precipitator** — A high-voltage electrical precipitator consists of an electrode which imparts an electrical charge to all the dust particles and a plate or pipe which attracts these charged particles. The dust is removed from the plates by rapping from the pipe by washing. A substation is required to house the transformer which changes the voltage to 50,000 to 75,000 volts, and a rectifier which changes the alternating current to direct current.

Two types of precipitators are on the market: (1) A heavy-duty, industrial type, using voltages from 50,000 to 75,000; (2) a commercial type using 12,000 to 15,000 volts. The Trion is of the latter type. With the lower voltages, no large transformer or rectifiers are required—no elaborate substation. The power is furnished by a compact power pack.

Reasons for testing this unit were twofold: (1) To find the characteristics of the dust collected by an electrical precipitator; (2) to find out if the higher voltages were necessary for our light dust loads. For the first few tests, the unit was run continuously without rapping with no appreciable arcing.

The following data were collected from this test:

1. A marked improvement is shown between the clean and dirty stacks—an efficiency of approximately 80 per cent. Occasional dust puffs in the clean stack would seem to indicate that the unit was at its capacity, even though being used at only 33 per cent rating.

2. Although on small installations the small power pack is attractive, it does not prove so on large units. The installation on our furnaces would require at least 48 separate cells and power packs.
3. The dust agglomerated into larger particles nicely and did not remain in its original state as was expected.

**Test 5, Type N Rotoclone**—This is a combined exhaustor and dust separator in which the cleaning action is obtained by washing the gases with a water spray created by the gases whipping through

vanes immersed in a standing body of water. Simple drag chain can be used to scrape the dust out of the hopper.

This unit was tested because it offered the possibility of the advantages of a gas scrubber without the disadvantages of recirculating or cleaning the dirty water. It eliminates the need for cooling the gases. It is compact in that it combines both a cleaner and an exhaustor.

A pressure drop in 4 inches H<sub>2</sub>O was carried across the unit. In four weeks, the water eliminators

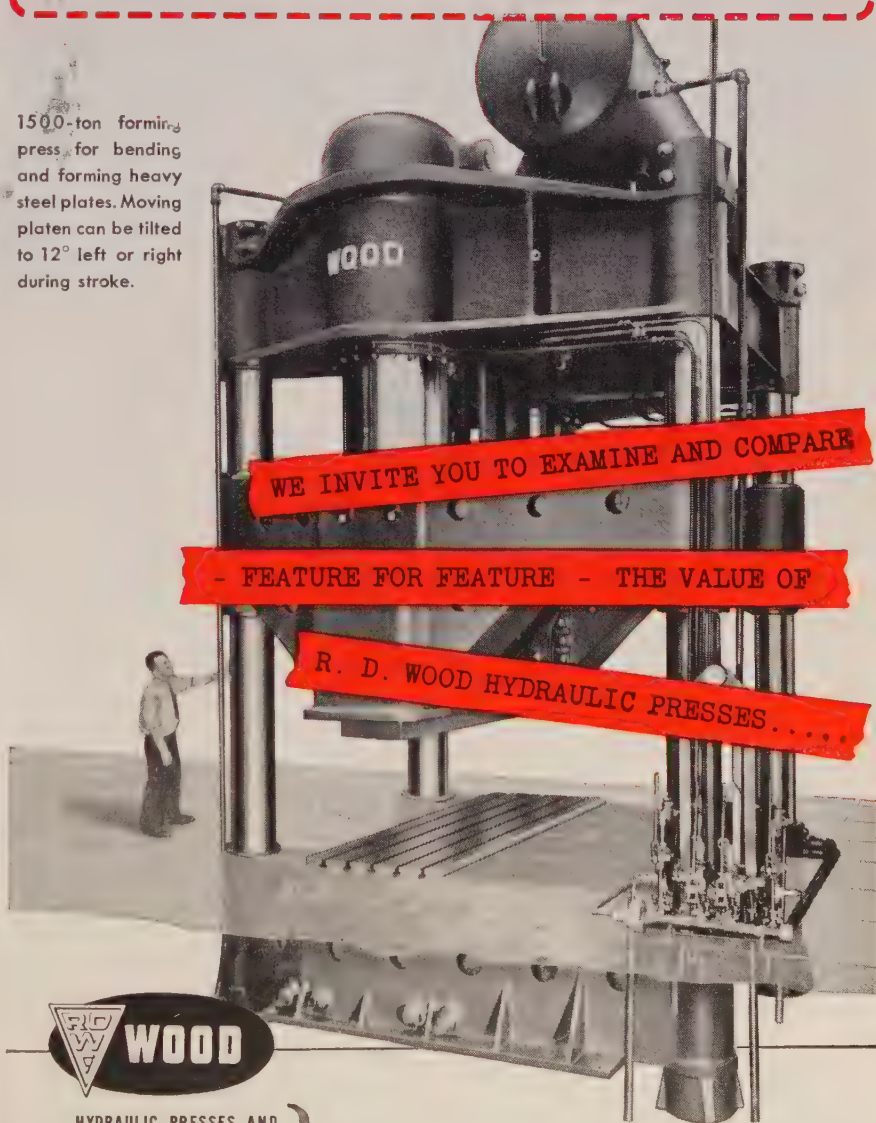
*If it's an* **R. D. WOOD** ... *It's Good\**

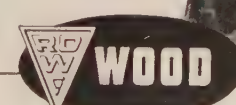
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VAST improvements in the uses of steel and alloy metals, as well as revolutionary advances in precision machining and electronic controls, may some day render obsolete the use of jewels in watches.

This is the cautious opinion of engineers of United States Time Corp. Watch jewels, they say, are not what they used to be, and the public has a distorted idea of their value and meaning. In the first place, real gems no longer are used in even the most expensive timepieces—only synthetics.

Although the engineers admit that for the present there is no real danger of synthetic jewels being discarded in higher priced watches, they believe that if experiments with steel and metal alloys, as well as the application of electronic controls and precision machining progress at their present pace—well, jewels may revert to their sole function, personal ornamentation.

were completely corroded away. Then the guide vanes and the inspection door began to corrode. Soda ash was added to neutralize the free acid, but the  $H_2SO_4$  equivalent of the total Fe kept increasing.

The unit showed enough promise that the manufacturer was asked to design a filter which would replace the water eliminators. It was hoped the filtering action would increase the efficiency enough to produce an acceptable stack. A filter pad 8 inches thick filled with fine strands of twisted wire was designed but the wire corroded quickly and only a few tests were run. The increase in efficiency was not satisfactory.

The design engineering department then made up a filter pad 4 inches thick filled with gravel  $1\frac{1}{2}$  to  $\frac{1}{2}$ -inch diameter. Sufficient water hit the filter so as to eliminate the need for back-washing. This pad increased the pressure drop to 6.2 inches  $H_2O$ .

Data from this test indicated:

1. The standard type N Rotocloner was good for approximately 50 per cent efficiency. Use of the wire filter increased this to 50



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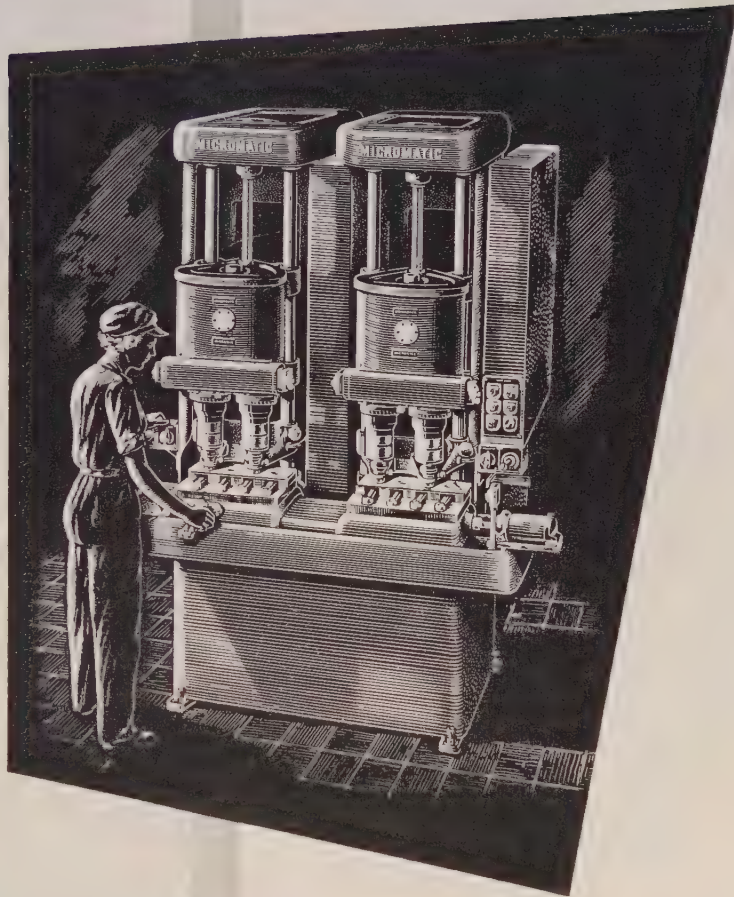
- The dealer who sold them?
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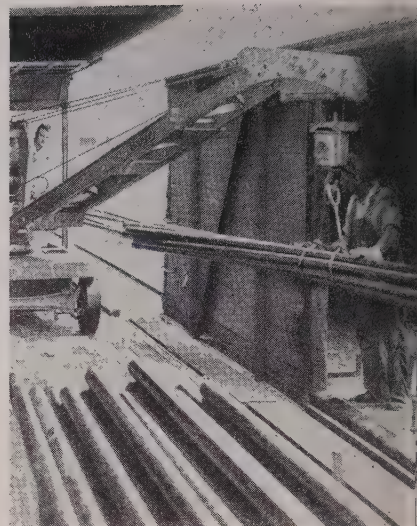
RECEIVING TO STORAGE

STORAGE TO PRODUCTION

PRODUCTION TO ASSEMBLY

ASSEMBLY TO WAREHOUSE

WAREHOUSE TO SHIPPING



### 20-Foot Tube, 6-Foot Door

Crane truck that snakes 20-foot long bundles of steel through a 61-foot box car door solves a handling puzzle for National Acme Co., Cleveland. A laborer guides the bundle into its proper spot on the dock. Company uses the Baker-Raulang crane to replace four men needed to do the job manually.

per cent and the gravel filter to 66 per cent.

2. The dust did not build up into a thick slurry in the water. It settled out and was easily scraped out by a simple drag chain. The dust after a week or so in the discharge hoppers becomes a heavy clay-like substance with no excess water even though it has been covered by water during that period. The dust will settle out in 15 to 20 minutes in still water.
3. There is excessive corrosion in the unit. The unit could be lined with concrete to overcome this.
4. There is excessive condensation in the stack which could prove disastrous, even though the stack is lined with brick. Reheating the cleaned gases could possibly overcome this objection, although it is likely that the corrosive mist would be sprayed on the surrounding buildings.

### Test 6, Impingo Pebble Filter

This unit is a simplified "Lynch Pebble" type filter in which gases pass through two or more moving beds of granular material. The dust is caught in the holes and cracks in the surface of the filter media.

Double burnt dolomite ( $\frac{1}{8}$  to  $\frac{1}{4}$  inch) was used as the filter media with the thought of putting it back into the open hearth but excessive sulphur killed this idea. The next thought was to use coke breeze and charge it into the blast



nance but this idea was dropped because the breeze is too fine to charge into the furnace and too coarse to sinter. It would have to be crushed—an extra materials handling job and also a dust problem. A cheap material like crushed air-cooled slag could be used, placed on a vibrating screen and discharged into the unit. The experiment was too short to deter-

### — Strains Tell Story —

SCIENTIFIC method of designing safe, economical underground structures, such as tunnels, mine rooms and slopes, soon may be provided by a new type of centrifugal testing apparatus developed in the Eastern station of the Bureau of Mines, College Park, Md.

New device operates on the principle that centrifugal forces generated by rapid rotation of a test model produce strains equivalent to those created in a mine opening by pressure of the surrounding formations. It makes use of strain gages to measure directly the amount of distortion in the rotating model.

Currently the bureau is using the apparatus to test models of bolted mine roofs to find a scientific method of designing safe and efficient roof bolting system based on physical and mechanical properties and observable structure of mine roof strata.

ne how many times it could be used and then thrown away. The gases passed through two inch beds of dolomite which were moved only enough to maintain a inch water pressure drop across the units. At this rate, about 30 tons of material would have to go through the unit per day on a standard furnace. Of course, this might be 5 to 10 tons being used over and over.

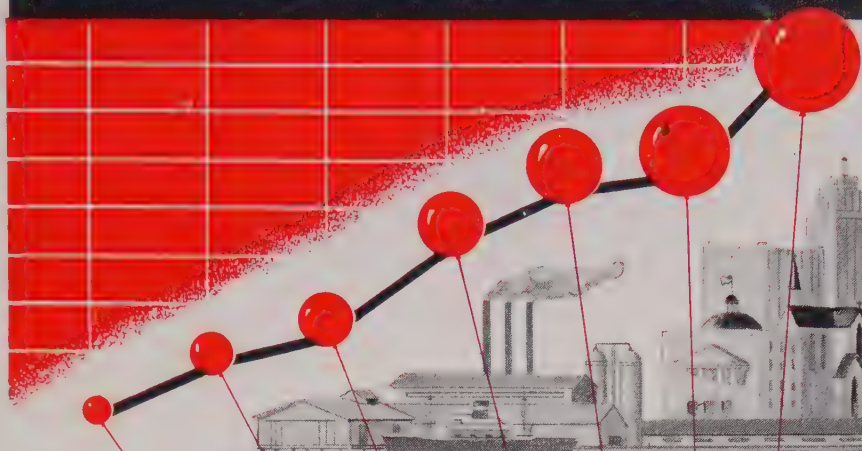
Test results show that:

Despite the high efficiency of 78 per cent there still are dust puffs in the clean gas.

Efficiency of the unit could be increased by simply slowing the rate of flow of the filter media. This means more fan horsepower and we already had a 6-inch water drop across the unit.

The bucket elevator, screw conveyors, vibrating screen and ro-

# INFLATION vs. FIRE PROTECTION



## *"Automatic" Sprinkler* has the answer

Let's face it! Inflation is a continuing process in today's economy. It makes little difference to a property owner whether it is the result of planning, bungling or world unrest. The fact remains that higher and higher replacement costs make it more and more important for him to protect what he owns.

Insurance provides a large part of this protection and it's a sound business policy to keep insurance coverage up to value. But prices are moving upward too fast for insurance to keep pace day by day. Moreover such coverage often becomes an unbearable financial burden.

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## *"Automatic" Sprinkler*

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tary valves might become a serious maintenance problem.

4. Handling of the filter media would be an additional operating chore.
5. The dust would not be in as good condition to handle as either from the type N Rotoclone or the precipitator.

**Summary**—Chemical analysis of the dust shows an iron content of approximately 58 per cent, but the sulphur content of the dust is high, which would make it unfit for our use without further treatment. Particle size analysis shows that

55 per cent of the dust is less than 5 microns, with 50 per cent less than 1 micron.

As these tests did not solve the problem and no practical, reasonable method of satisfactorily reducing the amount of dust from an open-hearth stack was developed, the only method we know of that would do this job would be a high-voltage electrostatic precipitator. Latest estimates of the complete cost of high-voltage electrostatic precipitators for eleven 250-ton open-hearth furnaces would be

over six million dollars. If the precipitators were installed, they would collect from this equipment less than three quarters of 1 ton of finely divided flue dust per day from each furnace. This would mean a sintering operation to agglomerate this fine dust and reduce the sulphur content, so that the material could be used in the blast furnaces.

J & L has spent large sums of money on equipment that has materially reduced the smoke and dust discharged by its operation, and as new equipment becomes available it will be given a thorough pilot plant test.

From a paper presented at the 45th annual meeting of Air Pollution and Smoke Prevention Association Inc., Hotel Statler, Cleveland, June 9-12.

## NACE Advances Symposia Topics

Topics are announced for five of the symposia selected for the March, 1953, conference and exhibition of National Association of Corrosion Engineers. First report on the 3600-member association plans for the Chicago session was made by H. W. Schmidt, technical program chairman. NACE has members from 47 states and 10 foreign countries.

Symposia and chairmen named by Mr. Schmidt are as follows: Cathodic Protection, E. P. Debus, Cathodic Protection Service, Houston; High Temperature Corrosion, John Rutherford, Babcock Wilcox Tube Co., Beaver Falls, Pa.; Protective Coatings, L. L. Whelan, Long Beach Harbor Department, Long Beach, Calif.; Oil and Gas Production Industry, H. L. Hartz, Atlantic Refining Co., Dallas; Chemical Industry, C. Moberly, Mallinckrodt Chemical Co., St. Louis.

## Investment Castings Reviewed

Methods offered by investment casting to eliminate machining tooling and assembly costs and minimize waste metal loss are advanced in a 12-page booklet published by Investment Casting Co., Newark, N. J. The report is the second edition of the firm's publication. The 12-page review contains a picture description of the process with criteria for appraising individual plant parts production setups.

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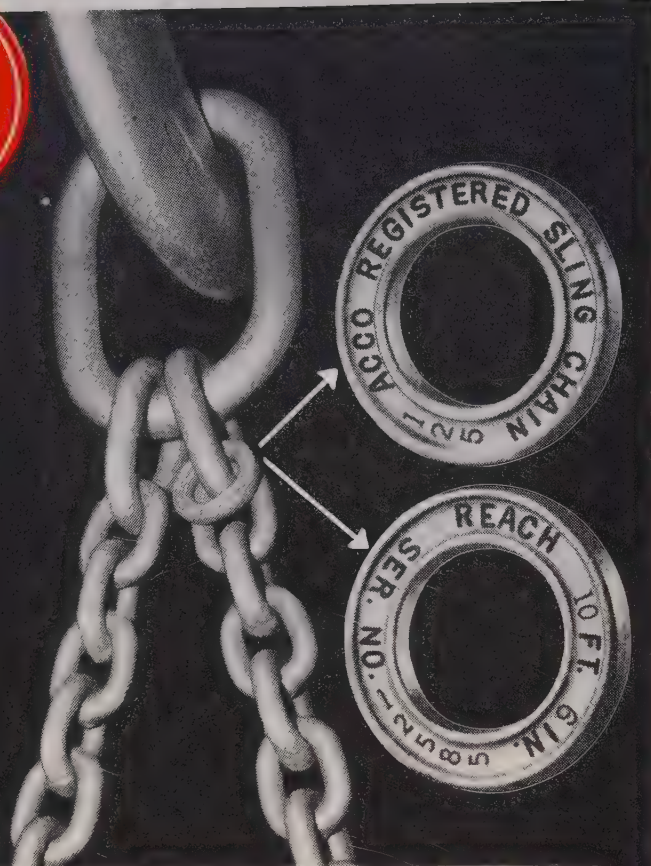
## Price Guide No

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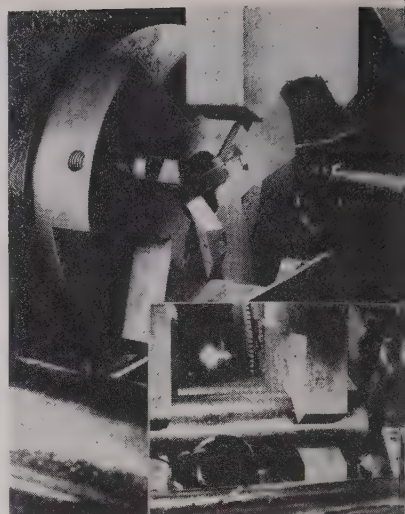
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Chain**



TWO SPECIAL FACING HEADS  
. . . each holds three 1/2-inch inserts

## Indexing Ups Tool Life

Eight positions and two regrinds  
means a set of inserts turn out  
3600 pieces

INDEXABLE FEATURES of the carbide insert is working to insure maximum tool life and minimum down time in chamfering and facing operations on 3 1/8-inch diameter seamless steel tubing. Work is done at Bendix Pacific Division's plant No. 2, on a Motch & Merryweather transfer machine.

The machine uses two special facing heads, each containing three 1/2-inch carbide inserts produced by Kennametal Inc., Latrobe, Pa. It simultaneously chamfers the side and outside diameters and faces the cylinder ends, employing two of the inserts for chamfering and the other for facing. Finished product is a tractor accessory actuator cylinder.

**Operational Sequence** — In sequence of operation, seamless stock is fed in, cut off by the saw and transferred to four clamping jaws. Next, each end is chamfered and faced to length simultaneously then ejected.

Width of cut on each insert is less than 1/2-inch. Therefore, chamfer insert holders are positioned so that actual cutting is performed toward the end of each cutting edge. After indexing each insert four times, outside and inside diameter inserts are interchanged to provide an additional four indexes per insert.

**Two Cutting Positions**—To get the additional indexes, facing



# THE IMPROVED Exide-Ironclad BATTERY

## OUTSTANDING NEW FEATURES INCLUDING

The polyethylene insulating tube sealer combine to make Exide-Ironclad, *more than ever before*, YOUR BEST POWER BUY ... AT ANY PRICE.

## THE IMPROVED EXIDE-IRONCLAD IS BUILT TO GIVE YOU ...

RAPID ACCURATE HANDLING ... UNIFORM RATE OF HANDLING ... HIGH AVAILABILITY ... LOW OPERATING COSTS ... LOW MAINTENANCE COSTS ... LOW DEPRECIATION COSTS ... HIGH MANEUVERABILITY ... SAFE HANDLING.

## BECAUSE OF ...

### IMPROVED POSITIVE PLATE CONSTRUCTION.

The long-life grids now contain SILVIUM—an alloy of silver, lead and other components—which make them highly corrosion resistant.

... the New Polyethylene insulating tube sealer of acid-proof, non-corroding plastic. It fits snugly into slotted tubes of positive plate, and reduces loss of active material. Even the small sediment deposit of the past is reduced 50%. Thus more active material remains available, and the high battery capacity is maintained for a longer working life.

IMPROVED NEGATIVE PLATES for higher electrical efficiency.

NEW SEALING COMPOUND—provides permanent seal between jar and cover.

SEAMLESS SHOCK-PROOF JAR, of high quality rubber combines tensile strength and elongation for long-life and heavy-duty service.

NEW UNBREAKABLE PLASTIC VENT PLUGS of polyethylene.

TYPES, SIZES AND CAPACITIES for all kinds and makes of battery-electric trucks—hand and rider.

THE ELECTRIC STORAGE BATTERY CO.

Philadelphia 2

Exide Batteries of Canada, Limited, Toronto

1888

DEPENDABLE BATTERIES FOR 64 YEARS

1952

'EXIDE-IRONCLAD' and 'SILVIUM' Reg. T.M. U.S. Pat. Off.



YOUR BEST  
POWER BUY



AT ANY PRICE

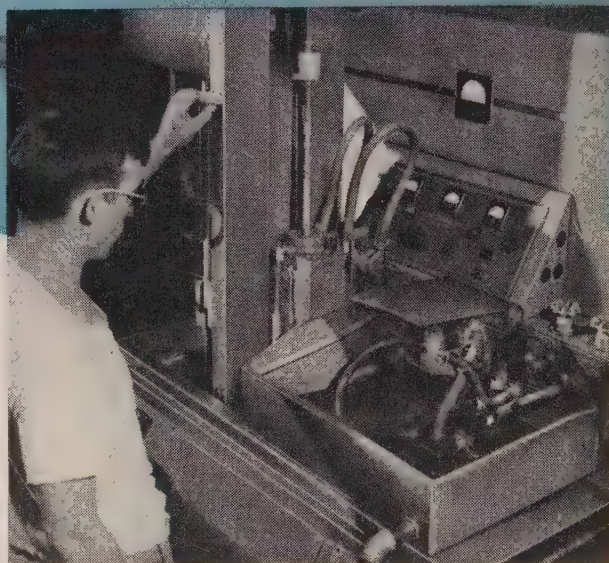


# 25 "Production Headaches"

## Avoided with RF HEATING!

These 25 tractor parts posed quite a problem to International Harvester's new Louisville Works. Each one had to be hardened—quickly, efficiently, economically. Each one could have been a "production headache"! Management conferred, studied and carefully investigated the problem. This analysis, coupled with their past experience, led to the final decision. The choice for these parts . . . Induction Heating!

*Westinghouse equipment was purchased with the following results:—reduced heating, machining, and steel costs . . . lower material handling costs . . . and better quality with lower product design costs. All this with only one 50 KW-450 KC and four 20 KW-450 KC Westinghouse RF units!*



If you're the kind of alert businessman who is always on the lookout for increased production at decreased costs, look into the possibilities of Westinghouse Induction Heating.

The full Induction Heating story, complete with case histories, is told in a highly interesting booklet. Just send in the coupon for your free copy!

J-02242

Westinghouse Electric Corporation  
Department S-42

2519 Wilkens Avenue · Baltimore 3, Maryland

Send me your informative case history booklet on induction heating.

Name ..... Position .....

Company .....

Street .....

City ..... Zone ..... State .....



YOU CAN BE SURE...IF IT'S  
**Westinghouse**

INDUCTION HEATING



ert holder simply is moved  
its slot to obtain two cut-  
g positions on each of the four  
etting edges. This means a total  
eight positions. Use of inserts  
this manner permits machining  
0 to 160 pieces per index—or  
00 to 1280 pieces for the entire  
ght indexes. Feed is 0.005-inch  
r revolution at a speed of 400  
m or 363 sfm.

After machining the above num-  
r of pieces, inserts are reground  
top of tip only and indexing  
quence repeated. Because two  
ch regrinds are available, one  
t of six inserts turns out a total  
3600 to 3840 pieces. It takes  
s than 10 minutes to change in-  
erts.

A 10-to-1 soluble oil is used as  
coolant during sawing, but the  
rbride tips are applied without  
olant.

## ool Eases Wheel Boring

Three-in-one tool prevents bar  
deflection, machine damage in  
boring cored hub wheels

DIFFICULT problem of boring  
red hub wheels is being solved  
several railroad repair shops  
a new tool. Besides preventing  
r deflection and machine dam-  
ge in the operation, it is increas-  
g interest in the use of cored  
heels on rolling stock primarily  
ecause of the savings in wheel  
eight.

Successful operation of the  
three-in-one" tool, made by Davis  
oring Tool Division, Giddings &  
ewis Machine Tool Co., Fond du  
ac, Wis., is embodied in a set of  
extra cutters located between the  
rst roughing and the final finish-  
g cutters.

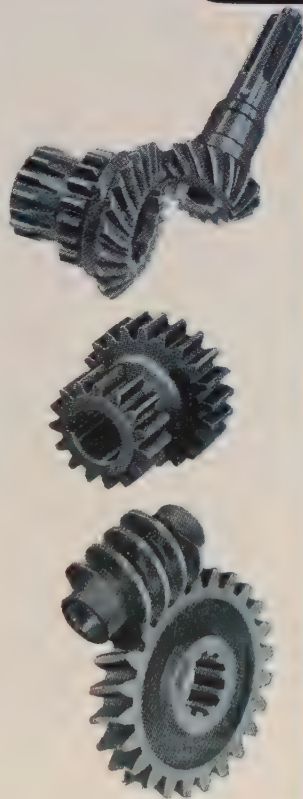
Cutters Support Tool—Arrange-  
ment of the intermediate cutters  
rovides continuous cutter contact  
n the bore during the boring cy-  
cle regardless of the cored open-  
ngs in the wheel hub. The cutters  
ctually support the boring tool  
n the bore, lending rigidity to  
oth the bar and machine ram.  
his is what prevents the deflec-  
ion.

In one of the car wheel shops  
where the Davis tool is employed,  
½ x 10-inch cast iron wheels are  
ored. Three-eighths of an inch of  
tock is removed from either side  
f the bore in a single pass at a

## new production facilities



New plant of  
Fairfield Manufac-  
turing Co.,  
Lafayette, Indiana



## for fine GEARS

Quantity purchasers of gears have made FAIRFIELD one of America's largest independent producers of precision cut, automotive type gears such as are being used today in ever-increasing numbers in Agricultural Implements... Power Shovels... Machine Tools... Diesel Locomotives... Road Graders... Lift Trucks... Road Rollers... Pump Drives... Winches... as well as in Trucks, Tractors, and Military Vehicles.

Fairfield's facilities are unexcelled. Here "under one roof" in a new and ultra modern plant designed especially for the purpose, Fairfield has everything needed for producing *fine gears* EFFICIENTLY, ECONOMICALLY: batteries of the most modern machines, engineering department, metallurgical laboratory, complete heat treating facilities—all operated by highly skilled craftsmen working under expert supervision. *For the Best in Gears, Specify Fairfield!*

## FAIRFIELD MANUFACTURING CO.

2313 So. Concord Road  
LAFAYETTE  
INDIANA





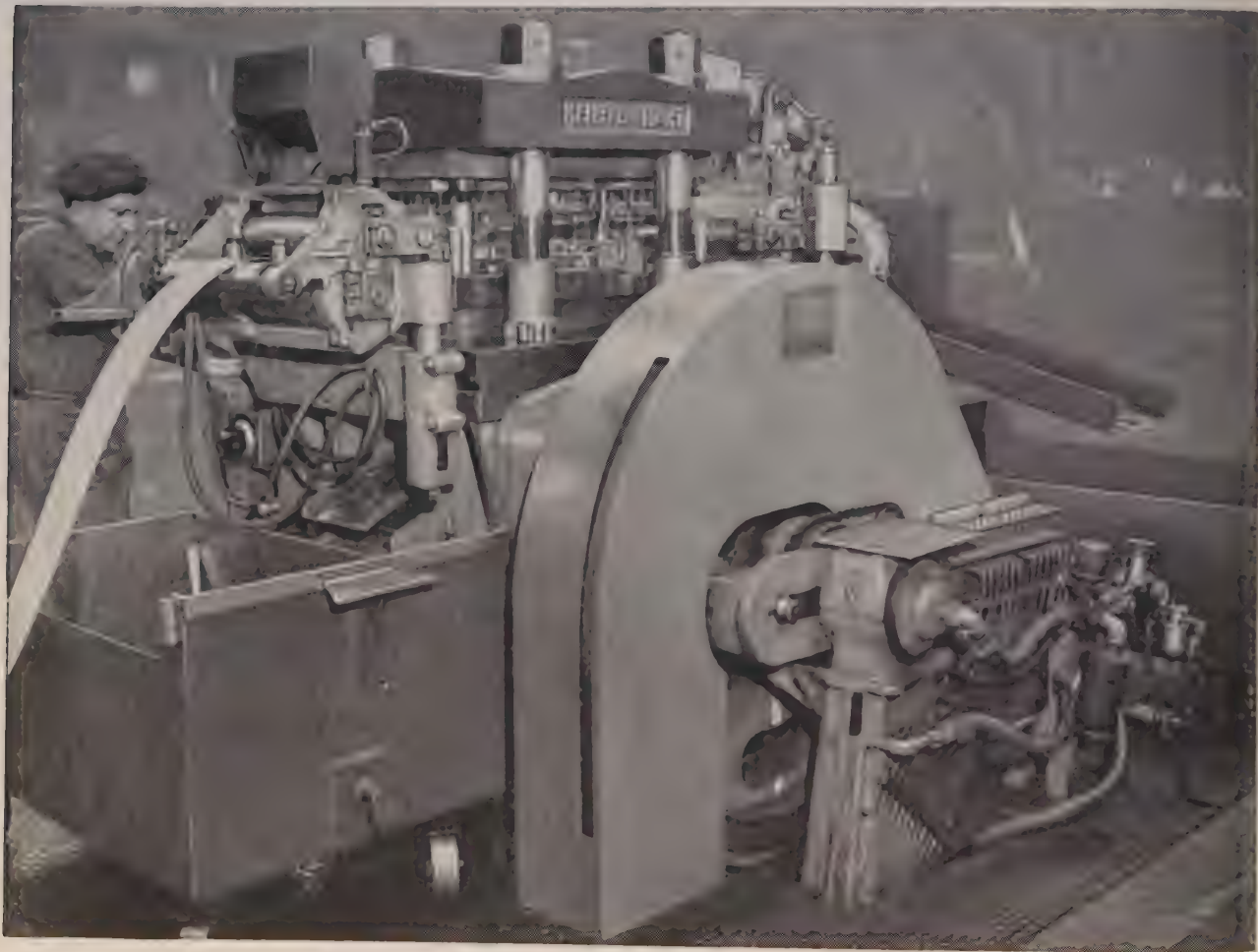
# It Pays Three Ways To

First, you can combine operations — use progressive dies for metal stamping jobs that normally would require several presses. Second, you get high speed at no sacrifice in quality of work. Third, you get longer die life.

These benefits are inherent in the design of the Henry & Wright Dieing Machine. It is built to give them. Note low center of gravity — flywheel, crankshaft, connection are below the punchholder. This permits high speed, but minimizes vibration.

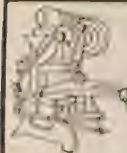
Maximum guiding surface is provided in the four-post punchholder guide, assuring constantly accurate alignment. A pulling stroke is applied to the die and the punchholder takes only the load required to do the work in the die. Any angular thrust from the crankshaft is absorbed by the lower crosshead.

For more pieces per minute and between grinds — for less handling and more finished work — modernize with Henry & Wright Dieing Machines. They are precision-built to do precise work.



*In Chrysler's Highland Park Plant,* Henry & Wright Dieing Machines are used to make fluid coupling fins and torque converter impeller blades. Note the low center of gravity of the Henry & Wright Dieing Machine. It allows high speed with minimum vibration.

## OTHER EMHART PRODUCTS INCLUDE:



PREMIUM QUALITY  
STAMPING PRESSES  
**THE V & O PRESS CO.**  
Division of Emhart Mfg. Co.  
HUDSON, NEW YORK



GLASS MAKING  
MACHINES  
**HARTFORD-EMPIRE CO.**  
Division of Emhart Mfg. Co.  
HARTFORD 2, CONNECTICUT



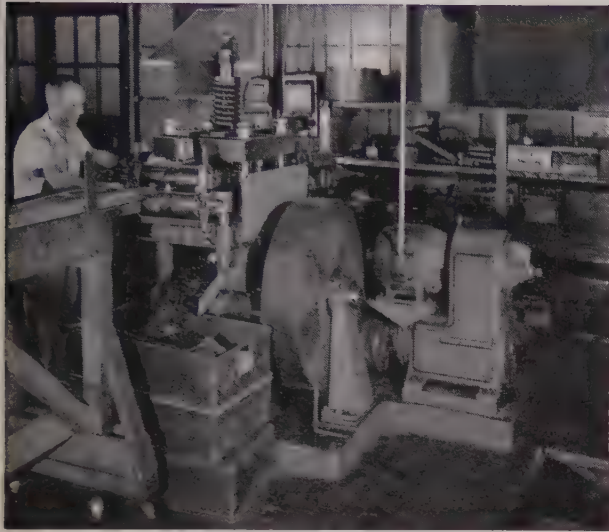
AUTOMATIC PACKAGING  
EQUIPMENT  
**STANDARD-KNAPP**  
Division of Emhart Mfg. Co.  
PORTLAND, CONNECTICUT



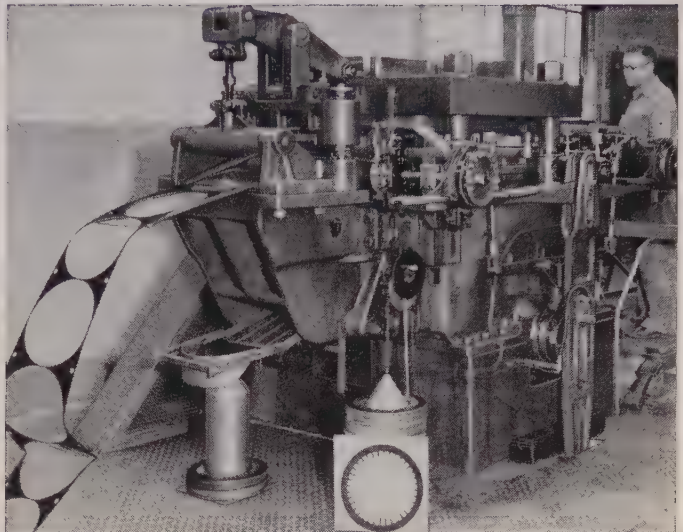
PLASTIC BOTTLES, RODS,  
TUBES, SPECIAL SHAPES  
**PLAX CORPORATION**  
Subsidiary of Emhart Mfg. Co.  
HARTFORD 1, CONNECTICUT



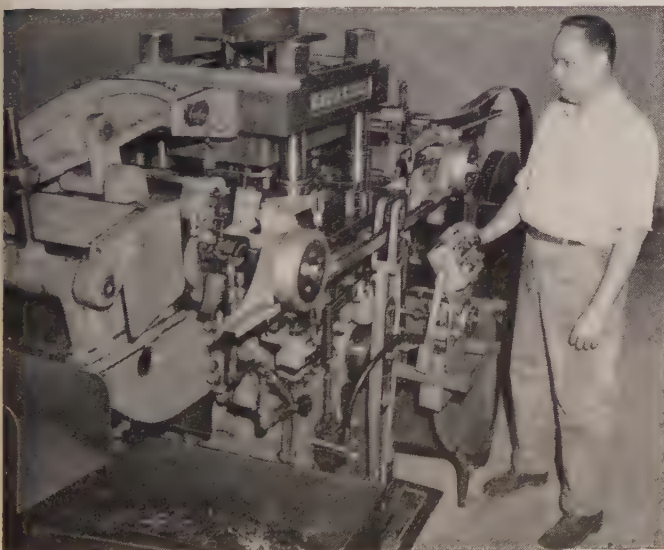
# Modernize Metal Stamping- with Henry & Wright Dieing Machines



**Knapp-Monarch Produces** completed rotor and stator laminations for its electric motors on 25-ton and 50-ton Henry & Wright Dieing Machines. Both pieces are made at once, at speeds substantially in excess of equipment previously used.



**Rotor and Stator Laminations** are made simultaneously of silicon steel on 150-ton Henry & Wright Dieing Machines at Fairbanks, Morse & Co. Unique feature of H & W design is that the upper crosshead takes only the pressure required to do the work in the die.



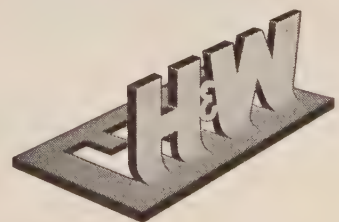
**Numerous Types** of motor laminations are made on the Henry & Wright Dieing Machines operating at General Industries. This illustration shows another unique advantage of these machines — the four post guide to the upper crosshead, which assures accurate and constant alignment.

**Only the best is good enough**



## FACT PACKED CATALOG

Complete descriptions of all Henry & Wright Dieing Machines. Write: Henry & Wright, 441 Windsor St., Hartford 5, Conn.



**HENRY & WRIGHT**  
Division of Emhart Mfg. Co.



## Technical Service Data Sheet

### Subject: PROTECTING FRICTION SURFACES

WITH **THERMOIL-GRANODINE®**

#### INTRODUCTION

Fabricators and product designers, particularly in the automotive field, are aware that even highly polished surfaces under friction weld, gall and score. One of the most inexpensive and practical methods of preventing this is to coat the metal to prevent metal-to-metal contact. With cast iron or steel, the "Thermoil-Granodine" manganese-iron phosphate coating provides a wear-resistant layer of unusual effectiveness.



Thermoil-Granodizing greatly prolongs the life of parts subject to friction. It protects the surface of products like the diesel engine liners shown above and the many moving parts of automobiles and other machines. "Thermoil-Granodine" with its remarkable lubricating properties is particularly valuable in these and similar applications because of its ability to retain oil and maintain lubrication under high pressures and high velocities. This ACP wear-proofing chemical not only permits rapid break-in without scoring, scuffing and welding but also reduces subsequent wear on friction parts.

#### "THERMOIL-GRANODINE" PROTECTS RUBBING PARTS

Thermoil-Granodizing removes "fuzz" from ferrous metal friction surfaces and produces a coating of non-metallic, water-insoluble manganese-iron phosphate crystals which soak up and hold oil as bare untreated metal cannot do. The oiled crystalline "Thermoil-Granodine" coating on piston rings, pistons, cylinders, cylinder liners, cranks, cam-shafts, gears, tappets, valves, spiders and other rubbing parts, allows safe break-in operation, eliminates metal-to-metal contact, maintains lubrication and reduces the danger of scuffing, scoring, welding, galling and tearing of the metal. The work to be protectively treated is merely Thermoil-Granodized and oiled, usually with a soluble oil.

#### "THERMOIL-GRANODINE" MEETS THESE SPECIFICATIONS

SPECIFICATION NUMBER	SPECIFICATION TITLE
MIL-C-16232 Type I	Coatings — phosphate; oiled, slushed, or waxed (for ferrous metal surfaces) and phosphate treating compounds.
AN-F-20 (See also U.S.A. 3-213)	Finishes, for electronic equipment.
U.S.A. 57-0-2C Type II, Class A	Finishes, protective, for iron and steel parts.
U.S.A. 51-70-1 Finish 22.02, Class A	Painting and finishing of fire control instruments; general specification for
M-364	Navy aeronautical process specification for compound phosphate rust-proofing process.



WRITE FOR FURTHER INFORMATION ON  
"THERMOIL-GRANODINE" AND ON YOUR OWN METAL  
PROTECTION PROBLEMS.



feed rate of nearly 1/4-inch per revolution.

**Better Performance**—Using the lower cutters in the bar and also the intermediate cutters for roughing, speed of the overall cut is increased greatly; the cutters last longer and produce better finishes.

Approximately 0.030-inch of metal is removed in the finishing cut with about 5/8-inch feed. To

#### Stores in the "Air"

ALTITUDE for its own operational purposes will be utilized by Sikorsky Aircraft Division of United Aircraft Corp. It is going overhead for additional storage space.

Some 1155 square feet of special flooring, open-mesh grating supplied by Irving Subway Grating Co., Long Island City, N. Y., will be placed over existing 7-foot spare parts bins in the shipping department. The grating, carrying a load of 170 pounds per square foot, will have a hinged section for handling stock from below, as well as from three sides.

In effect, it will be a mezzanine about 45 feet long and 25 1/2 feet wide. Since the steel "flooring" is 80 per cent open, it will allow spotting the fluorescent fixtures on top of the grating to light traffic aisles.

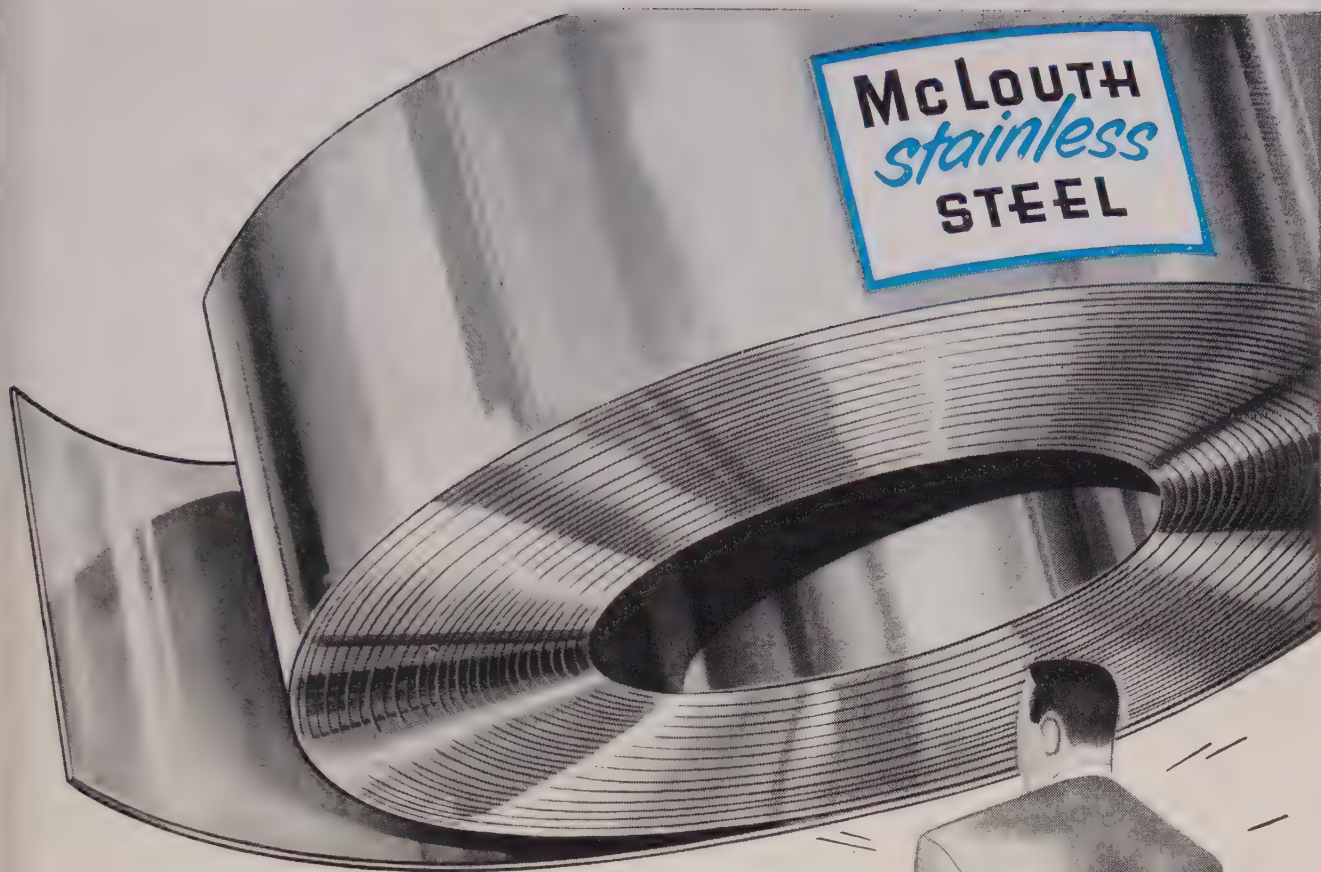
insure maximum accuracy and high final finish, both sets of roughing cutters are completely out of the bore before the finishing cutters enter. The complete boring cycle is only 2.3 minutes per wheel.

A graduated main screw operating an expanding wedge on the tool controls cutter movement. As a result, cutters can be set rapidly to meet axle step sizes so that holes up to 12-inches diameter can be bored.

#### Thread Gage Prices Cataloged

Prices of standard thread gages made by Detroit Tap & Thread Co., Detroit, are listed in a 20-page booklet published recently by the company. Gages priced include thread plug, thread ring and thread setting plug for machine screw and fractional thread sizes. Tables listing W, X and Y tolerances for thread gages also are recorded.



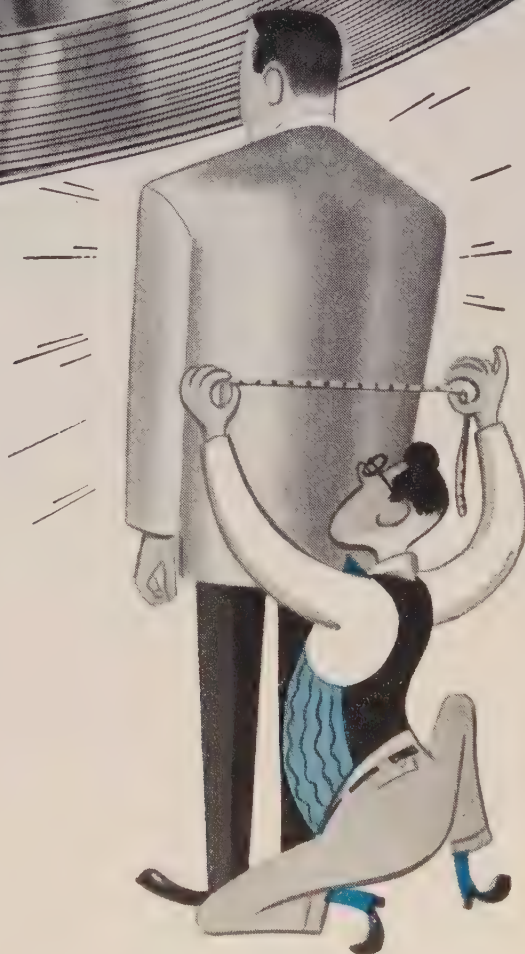


## Finished to your exact specifications . . .

When you order McLouth Stainless Steel you get the exact gauge, finish and temper for the job. This means increased unit production.

McLouth Stainless Steel is made to your order in a wide range of grades and finishes. It has a high resistance to corrosion, heat and wear and is easily fabricated into your finished products. Laboratory control assures the exact chemical composition of the steel.

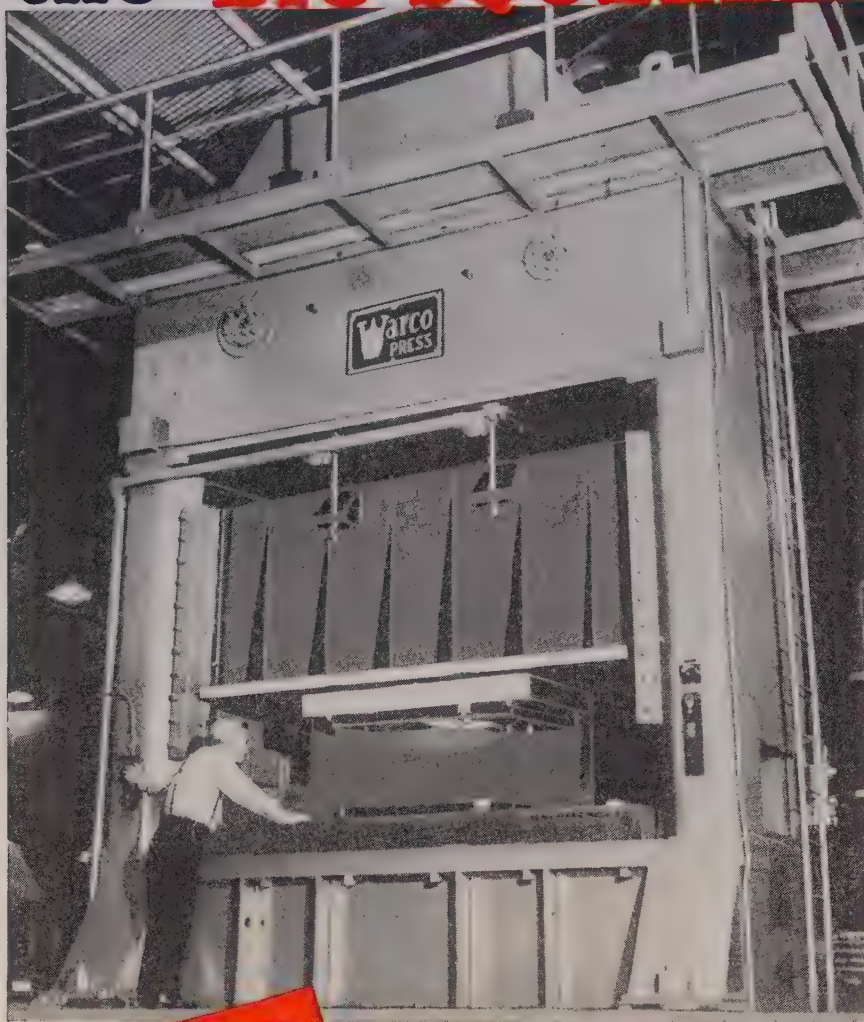
Ask for a McLouth Service Engineer to analyze your stainless requirements. If your product calls for stainless, *make it with McLouth Stainless Steel.*



**HOT AND COLD ROLLED STAINLESS AND CARBON SHEET AND STRIP STEEL**



# the 'BIG SQUEEZE'

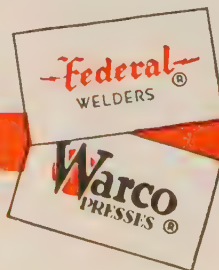


## GIANT Warco PRESS SPEEDS AIRCRAFT PRODUCTION FOR RYAN AERONAUTICAL

One of four huge new Warco Presses which represent the largest equipment ever installed at the Ryan Aeronautical Company. Ryan is using the presses to stamp out large aircraft components and initial tests point to an eventual savings of thousands of man hours and many tons of machined materials. Stainless Steel exhaust cones for jet engines were first to come off the new presses. Ryan found they could not only produce the pieces in a fraction of the time formerly required, but a number of machines normally used were free to perform other work. Ryan now plans to make further use of the flexible power of these Warco giants to streamline the production of combustion chambers, liners, aft frames and afterburner parts. Take a tip from this leading aircraft plant—look over the modern line of Warcos before you buy . . . you'll be further ahead in the long run.

THE FEDERAL MACHINE & WELDER COMPANY

WARREN, OHIO

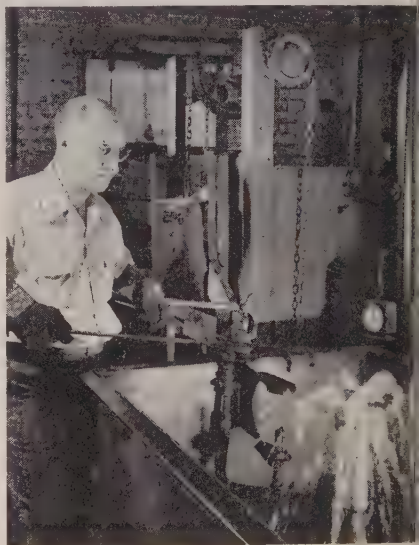


## Crucible Adds Test Tools

PROGRAM for expanding testing and development facilities at Park Works, Crucible Steel Co. of America is complete. W. H. McCormick, chief metallurgist, reports particular emphasis will be placed on simulated service testing—or subjecting steel in the mill to the same conditions it will meet in actual service.

In addition to latest mechanical testing equipment, Mr. McCormick says Park Works has enlarged its simulated service testing for mining and quarrying steels, and special steels for power and hand saws.

**Testing Special Steels**—For developing and testing special steels for such purposes as power and



SIMULATED SERVICE TESTING . . . Park Works completes expansion

hand saws, installations now available include controlled power saws, all types of tension measuring devices and power input meters. Other apparatus, such as a steel sharpener and drifter drills, is in use for testing mining and quarrying steel.

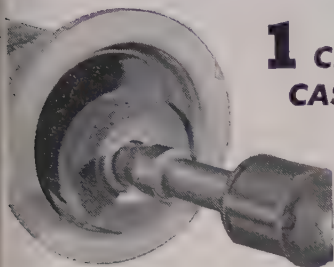
Mr. McCormick emphasizes that all facilities are available for cooperative studies on problems.

**Several Hundred Grades**—Crucible's Park Works is one of the country's largest specialty steel mills. It can furnish several hundred grades of steel requiring special analysis, quality control, unusual shapes and other features. Among its products are machine steels, drill steels, special alloy bars and highly finished sheets of stainless, alloy and tool steel.



# Pittsburgh Brushes Solved these Problems!

## 1 CLEANING RED-HOT CASTINGS in 30 seconds!



A Pittsburgh brush answered U. S. Pipe and Foundry's problem of cleaning red-hot castings. This rugged brush works 40 hours a week, turning out thoroughly cleaned castings at the rate of one every 30 seconds... a speed record for any brush cleaning operation of this type.

## 2 POLISHING 10,000 heating units!

When the Edwin L. Wiegand Company wanted to remove ragged edges from their *Chromalox* Heating Units economically and fast, they turned to rough, tough Pittsburgh Brushes for the answer. The 6" Pittsburgh steel wire brushes they installed polish 10,000 heating units during their life.



## 3 CLEANING WELDS in close quarters!

Allis-Chalmers' problem was to find a brush narrow enough to fit between cooling fins of transformer radiators, yet strong enough to remove slag and spall on welds which could conceal pressure-reducing pinholes. Pittsburgh engineers recommended an 8" rotary wire brush. Problem was solved!



### Let Pittsburgh Engineers Solve Your Brush Problems.

Pittsburgh's complete line of brushes of every type, for every purpose, will provide a practical and economical solution of any brush problem you might have. Drop us a line on your company letterhead for a copy of our new booklet that shows, through actual case histories, how Pittsburgh can help cut your brushing operation costs. Address: PITTSBURGH PLATE GLASS COMPANY, Brush Div., Dept. W-14, 3221 Frederick Ave., Baltimore 29, Maryland.



**PITTSBURGH**

**Power Driven  
BRUSHES**



BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS

**PITTSBURGH PLATE GLASS COMPANY**

To identify...  
specify



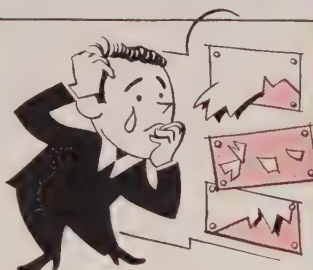
**Metal-Cal\***

...The permanent, self-adhesive  
identification device

**NO  
DRILLING,  
SCREWS OR  
RIVETS**



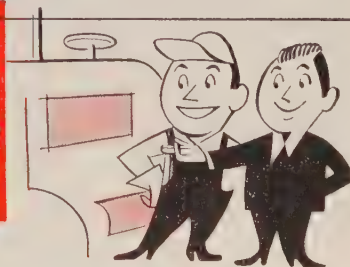
A METAL-CAL is a .003" thickness of aluminum foil—anodized, dyed and backed with a high tensile bonding material. Easily applied to any smooth, cohesive surface. Slashes labor and material costs of conventional nameplates.



**WON'T  
PEEL, CHIP  
OR CRACK**

Letters, colors and characters on a METAL-CAL live as long as the metal itself... survive the most trying conditions of weather and wear. The best of decals and litho-plates can't match the performance of a METAL-CAL.

**TREND  
IS TO  
Metal-Cals!**



Industrial use of METAL-CALS for permanent, distinctive identification spreads wider every day. Names of dozens of "big-name" manufacturers who now use METAL-CALS are available on request.

Main Office and Factory:  
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Office and Factory:  
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Inglewood 3, Calif.  
Office: 1725 E. 2nd St.  
Wichita, Kas.

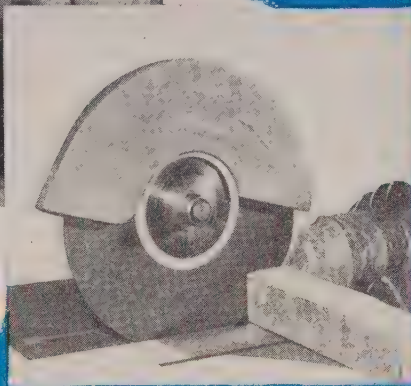
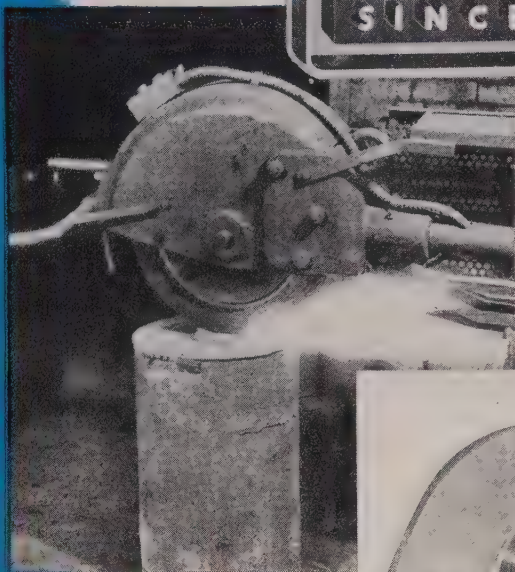
Representatives in all  
principal cities  
**FOREIGN LICENSED MFRS.**  
Metal-Cal, Ltd.,  
Vancouver, B. C.  
Maltz & Son, Ltd.,  
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**Metal-Cal**

Trade Mark registered.  
Patented in U. S. and Foreign Countries.  
For further information and quotes,  
address all inquiries to  
C & H Manufacturing Co.  
Dept. M1 Boeing Field, Seattle 8, Wash.





# Specific Purpose Grinding Wheels

Today, no general purpose wheel, whether for snagging, cutting off or finishing, can possibly perform with competitive economy and efficiency. From plant to plant, variations in nature of metals, wheel speeds, ways of working and objectives in each progressive step, are too great. Most plants gain three ways with Electro Specific Purpose Grinding Wheels. If you will write, wire or phone us, we will, without cost or obligation to you, send a technically trained Sales Engineer to show you how you can do it, too.



*Electro Refractories & Abrasives Corporation*  
344 Delaware Avenue, Buffalo 2, N. Y.  
Regional Warehouse: Los Angeles 58, California  
Plants: Buffalo, N. Y. and Cap-de-la-Madeleine, P. Q., Canada

## New Books

### Modern Metallurgical Practice

AN OUTLINE OF METALLURGICAL PRACTICE, by Carle R. Hayward; cloth, 720 pages, 6 x 9 inches; published by D. Van Nostrand Co. Inc., New York, for \$10.00; available from STEEL, Penton Bldg., Cleveland 13, O.

This up-to-date basic reference work and textbook on nearly all metals covers essential facts about metallurgical practice from mine to finished product. In this second edition many sections were completely rewritten because of the progress made in the industry. New ones have been added to cover numerous recent developments.

Brief chapters have been added on titanium and uranium because of the increasing interests in these metals. The treatment of secondary metals reflects their increasing importance. A special feature is made of the illustrations in this book. There are more than 400 and about a third of these are entirely new. The 65 tables have all been brought up to date.

### Wiremaking in U.S.A.

STEEL WIRE IN AMERICA, by Kenneth B. Lewis; cloth 351 pages, 6 x 9 inches; published by the Wire Association, Stamford, Conn., for \$15; available from STEEL, Penton Bldg., Cleveland 13, O.

Here is a challenging volume, a most practical commentary on the subject of wire. Studying the pages of this book is like looking at various wire mill departments through a high-powered microscope; even the familiar views yield highly significant details of raw materials, rod picking, acids, inhibitors, nails, galvanizing and other phases.

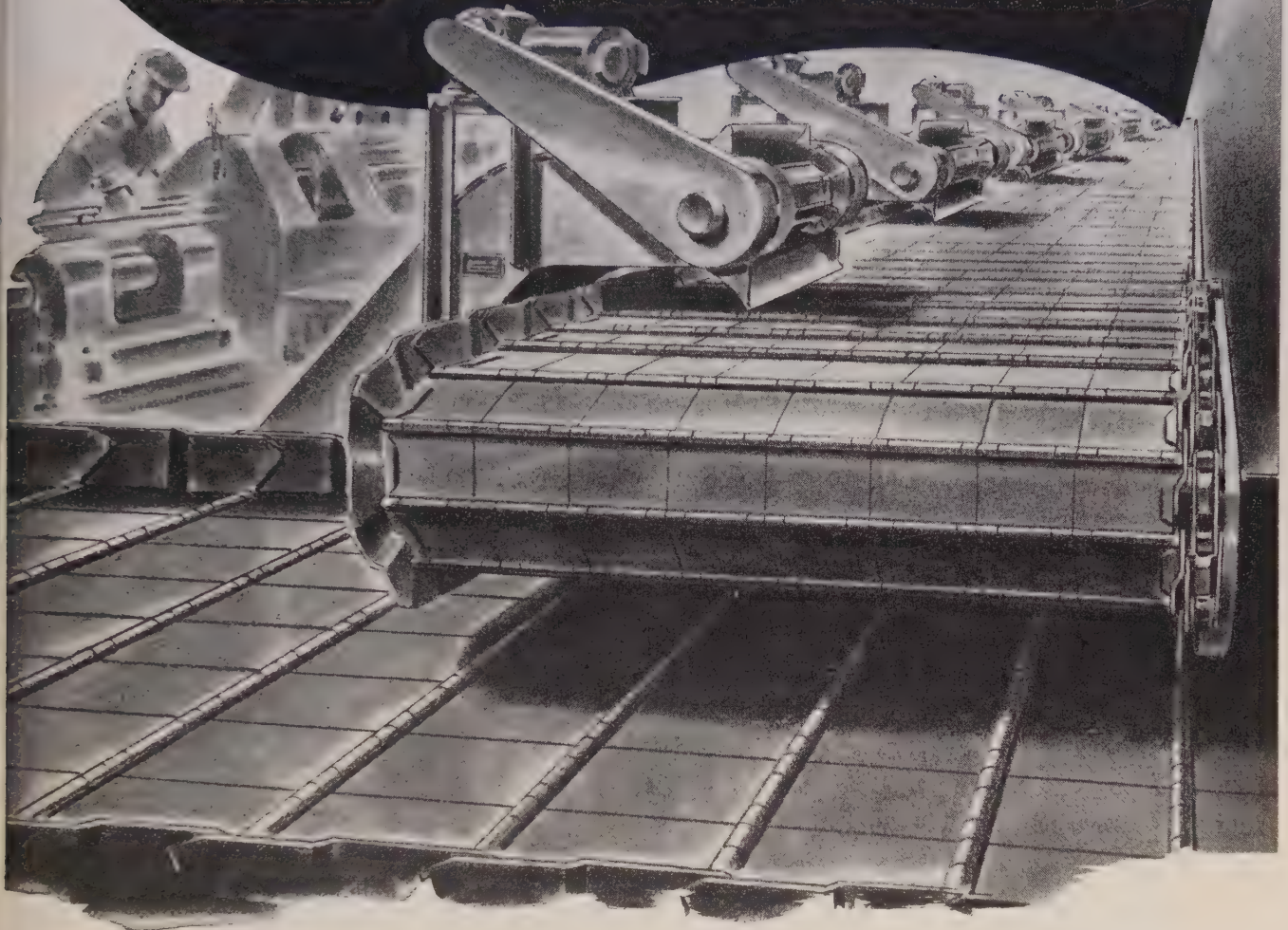
If you desire to trace wiremaking to its origin, or tie together the old and the new wire mill practices, chapter one is satisfying. Early American practice unfolds in detail and then the reader is treated to case histories beginning with practices of Colonial days. Such familiar names as Sugden, Goddard, Meon, Washburn and many other stalwarts who laid the foundation of the wire industry in this country are reviewed in the light of their enterprises.

If heretofore you have shied away from metallurgy applicable to wiremaking because of "over-my-head" reading, it will be profitable to spend a few minutes in the chapter on plastic flow. We do not know of a more satisfactory and comprehensive treatment of the subject. It abounds in strikingly original insight.

Autobiography of present-day wire



# MAY-FRAN AUTOMATIC SCRAP HANDLING SYSTEM...



## *Speeds-up production*

Increase machine tool production . . . eliminate manual lifting and hauling . . . reduce scrap handling time . . . with a MAY-FRAN engineered system. Hot, wet or highly abrasive chips, turnings and borings are continuously re-

moved from operating production machines by CHIP-TOTE conveyors. Scrap is then discharged onto MAY-FRAN hinged-steel belting which transports it out of plant or to other disposal point.

MAY-FRAN systems are completely automatic and provide maximum scrap handling efficiency. Speed of operation is synchronized with metal removing rate of machines. When drainage of coolants is required, steel belt can be furnished with perforated links.

# MAY-FRAN

ENGINEERING, INC.

For complete information on how a MAY-FRAN engineered installation can mechanize your scrap handling, write for illustrated catalog.



1725 CLARKSTONE ROAD • CLEVELAND 12, OHIO

528-M1



# PLATECOILS

(REPLACE PIPE COILS)

heat this parkerizing tank



**WITHOUT DOWNTIME**  
for **CLEANING or REPAIRS**

at the Lycoming Spencer Division  
Avco Corp., Williamsport, Pa.

The only time this Platecoil was removed in over a year at Lycoming Spencer was to take its picture. The single 22" x 23" Platecoil has heated a 100-gallon Parkerizing tank, in daily use, *without downtime*. Built of Electro-polished Stainless Steel, the Platecoil has required *no cleaning or repairs*. Any deposit that builds up on the coil during the course of operation is "shocked off" when the steam pressure is dropped in the coil.

Notice how easy it is to lift the Platecoil out of the tank when the time comes that it does have to be cleaned, repaired or replaced. There are just two connections to loosen and both are outside the solution. The Platecoil merely is lifted out of the tank and replaced with little or no delay in production.

Platecoils have other advantages, too. They have about twice the heating area for a given space than can be obtained with pipe coils. Thus smaller size Platecoils can be used to save initial cost, tank space and handling time.

*Learn how you can cut your heat transfer costs by sending today for Platecoil bulletin No. 72.*

## PLATECOIL gives you these ADVANTAGES

- Cleaned and Repaired Without Dumping Tank Solution
- Greater BTU Transfer Per Unit Area
- Weighs Only Half as Much as Pipe Coil
- No Threaded Joints in Tank
- Increased Tank Capacity
- Fast, Easy Installation
- Easy to Clean



mill operators is interwoven in almost every chapter of the book. The human interest thus presented fosters but one conclusion—here is a masterly survey of the wire industry. If you want to read autobiography at its best, if you want to know what makes the wire industry in this country click, by all means do not pass up the running account of many of our leading wire mill executives as related by Mr. Lewis. Once you get into the story, rest assured you will not want to stop where the chapter ends.

When you come to the treatise on die history and stress theories you will reach the firm conclusion that here the author is at his best for he perceives patterns and outlines in the wire drawing field which escape the casual eye. These chapters are a veritable gold mine of suggestion and know-how. No one will read these pages without experiencing a build-up in the quality of his own wire manufacturing knowledge.

Along with his knowledge of the steel industry, Mr. Lewis is conversant with many phases of wire mill practice and machinery from which he draws copiously and for which he has a distinct gift. Featured in the landscape of the author's thoughts are examples like: "The job is handled by men of the type who slip into a tiger's cage, steal his dinner and slip out safely," or "the Germans, who would chase a Btu till it falls panting on the trash pile."

## Canadian Trade Index

1952 EDITION OF CANADIAN TRADE INDEX; cloth, 1102 pages 6½ x 10 inches; published by Canadian Manufacturers' Association Inc., Toronto, Canada for \$7.50.

This is a complete, authoritative all-Canadian directory of Canadian industrial production and is so recognized by the government of Canada. This year's edition shows more than 500 firms and many new products have been added to the 1951 edition.

Part I, special export section, gives basic information in regard to foreign trade, including Canadian government export services, financing procedure, price quotations, etc. Part II is an alphabetical list of all Canadian manufacturers with branch offices, factories, export representatives, trade marks, brands, cable address and codes. Part III is an alphabetical list of products manufactured in Canada with the names of all firms manufacturing them. The produce section, Part IV, lists some of the principal producers, shippers and exporters of agricultural products and allied lines. The directory of



# Save critical alloys

## WITH AJAX-NORTHROP

### INDUCTION MELTING

High speed melting enables Ajax-Northrup high-frequency furnaces to recover *all* of the nickel in the charge, 99% of the chromium, 95% of the molybdenum . . . consistently high percentages of every alloying element.

The difference between these figures and the performance of ordinary furnaces represents *savings* . . . both of money, and of critically hard-to-get alloys.

For instance, a 2% chromium saving in one Ajax-Northrup equipped foundry saves ten tons of ferrochrome a month, or \$60,000 a year. (Melting capacity 1,000,000 lbs. a month—63% ferrochrome @ 25¢/lb.)

\$60,000 a year pays for the furnaces in short order—and the chromium saved is enough for an extra 70,000 pounds of 18 and 8 stainless steel a month.

The figures are slightly different for other critical alloying elements. But the arithmetic's the same—the total savings frequently just as impressive.

Besides saving metals, Ajax-Northrup furnaces melt at extremely high speed, with composition controlled within 0.25%, pouring temperatures within 20°F.

There's an Ajax-Northrup furnace to fit every melting job, including yours. Write us today for details.

SEND FOR NEW INDUCTION  
HEATING AND MELTING BULLETIN

FOR HEATING AND MELTING

139

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**AJAX  
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Associate Companies

AJAX ELECTRO METALLURGICAL CORP.  
AJAX ELECTRIC FURNACE CORPORATION  
AJAX ELECTRIC COMPANY, INC.  
AJAX ENGINEERING CORPORATION



products includes a cross-reference index in French. Limited editions can be obtained with this section in Spanish or Portuguese.

A new section, Canadian Industry Builds, is a graphic portrayal of the country's industrial growth.

## Furnace Heating Problems

**SCIENCE OF FLAMES AND FURNACES**, by M. W. Thring; cloth, 416 pages, 5 x 8 1/2 inches; published by John Wiley & Sons Inc., New York, for \$6.50; available from STEEL, Penton Bldg., Cleveland 13, O.

Purpose of this book is threefold. First, it stresses the gap between such fundamental sciences as physics,

chemistry and physical chemistry and industrial furnace design and use. It is felt that a greater use of the science of thermodynamics in furnace design can lead to a more accurate and clearer way of thinking about such problems as those of preheat, use of waste heat, recirculation of flue gases and different qualities of fuel. Secondly, the aspect of diagnosis is stressed. Design must always remain an art as well as a science.

Finally, problems of furnace heating are presented in such a way as to be of interest to the academic scientist as well as to engineers in charge of design and operation.



*School Daze!*

Just because that bathing suit is proper at the beach, she shouldn't assume it's proper for the classroom, too!

And just because one bearing is best lubricated by one particular grade of oil, you shouldn't assume that the same oil is best for *all* bearings on that machine. In many cases it isn't.

OIL CUPS permit you to lubricate each bearing with the oil best suited to that bearing—thus prolonging bearing life, reducing maintenance costs, cutting down-time, boosting production. And oil cups fortunately *cost very little*.

Gits oil cups have been the standard for industry for more than 40 years. Gits Bros. has the largest selection of oil cups available anywhere. Call on Gits Bros. for a prompt, efficient solution to your lubrication problems.

Write for free Catalog No. 60-A

# GITS BROS. MFG. CO.

1844 S. Kilbourn Ave.

Chicago 23, Illinois

## CALENDAR OF MEETINGS

**August 11-13, Society of Automotive Engineers:** National West Coast meeting, Fairmont Hotel, San Francisco. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

**August 19-22, American Institute of Electrical Engineers:** Pacific general meeting, Phoenix, Ariz. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.

**September 3-15, Centennial of Engineering Convocation Period:** General manager, F. L. Edwards. Address: 57th St. & S. Shore Drive, Chicago 37.

**September 4-6, American Institute of Chemical Engineers:** Palmer House, Chicago. Institute address: 120 E. 41st St., New York 17. Secretary: Stephen L. Tyler.

**September 8-10, American Standards Association:** National standardization conference, Museum of Science & Industry, Chicago. Association address: 70 E. 45th St., New York 17. Secretary: G. F. Hussey Jr.

**September 8-12, Instrument Society of America:** Annual fall meeting and exhibit, Public Auditorium & Hotel Cleveland, Cleveland. Society address: 921 Ridge Ave., Pittsburgh 12. Secretary: Richard Rimbach.

**September 9-11, Society of Automotive Engineers:** National tractor meeting, Hotel Schroeder, Milwaukee. Society address: 33 W. 39th St., New York 18. Secretary: John A. C. Warner.

**September 9-13, American Chemical Society—Chicago Section:** National chemical exposition, Chicago Coliseum, Chicago. Address: 86 E. Randolph St., Chicago 1.

**September 11, American Iron & Steel Institute:** Regional technical meeting, Palmer House, Chicago. Institute address: 350 Fifth Ave., New York 1. Meeting director: Frank R. Land.

**September 14-17, National Automatic Merchandising Association:** Annual meeting and exhibit, Palmer House, Chicago. Association address: 7 S. Dearborn St., Chicago. Secretary: C. S. Darling.

**September 14-19, American Chemical Society:** Fall meeting, Atlantic City, N. J. Society address: 1155 16th St. NW, Washington. Executive secretary: Alden H. Emery.

**September 14-20, Concrete Reinforcing Steel Institute:** Semi-annual fall meeting, The Broadmoor, Colorado Springs, Colo. Institute address: 38 S. Dearborn St., Chicago 3. Secretary: H. C. Deibel.

**September 15-17, Allied Railway Supply Association:** Annual meeting, Hotel Sherman, Chicago. Association address: 109 N. Dearborn Ave., Chicago 2. Secretary: Charles Weil.

**September 19, The Wire Association, Wire & Ferrous Division:** First regional meeting, Elton Hotel, Waterbury, Conn. Association address: 453 Main St., Stamford, Conn. Executive secretary: Richard E. Brown.

**September 22-23, Steel Founders' Society of America:** Fall meeting, The Homestead, Hot Springs, Va. Society address: 920 Midway Bldg., Cleveland 15. Secretary: F. K. Donaldson.

**September 22-24, National Truck Body Manufacturers Association:** Annual meeting, Muehlebach Hotel, Kansas City, Mo. Association address: DuPont Circle Bldg., Washington. Secretary: Shipley D. Burton.

**September 22-25, American Mining Congress:** Metal & nonmetallic mineral mining conference, Denver. Congress address: U. S. Ring Bldg., Washington 6. Secretary: J. L. Conover.

**September 29-30, American Machine Tool Distributors Association:** Annual meeting, Cavalier, Virginia Beach, Va. Association address: 1900 Arch St., Philadelphia 3. Executive secretary: Thos. A. Fernely.

**September 29-Oct. 2, American Institute of Steel Construction Inc.:** Annual convention, Empress Hotel, Victoria, B. C. Institute address: 101 Park Ave., New York 17. Executive vice president: L. Abbott Post.

(Continued on p. 140)





**YOUR MEN**

*asked for these*

**AIR GRINDER FEATURES!**

For increased production, dependability and safety, check your present portable grinding equipment against these Ingersoll-Rand features:

**Overspeed Safety Coupling**—If the regular governor, because of wear, abuse, improper adjustment, or dirty air, allows the motor to overspeed, the overspeed safety coupling automatically disconnects the arbor and the wheel from the motor.

**Quieter Exhaust**—It takes 10 of these Grinders to produce exhaust noise equal to that of one previous machine! This means increased operator morale and top grinding efficiency!

**Extra Exhaust Positions**—The operator can choose any one of four exhaust positions, so that the exhaust air does not strike the operator's body or hit the work and blow grit and metal particles about.

**Easy to Carry**—There is plenty of room behind the throttle lever for a comfortable

grip. The Grinder may be easily and safely carried while it is connected to the air line.

**More Power**—A larger motor maintains higher speed under normal grinding loads to remove more metal in less time.

**Optional Handle**—The popular grip handle is interchangeable with a straight handle where the operator's preference or the job at hand calls for it.

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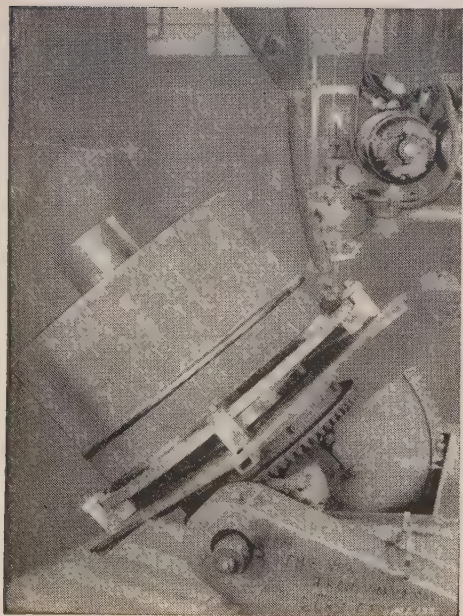
# FOR QUALITY WELDMENTS

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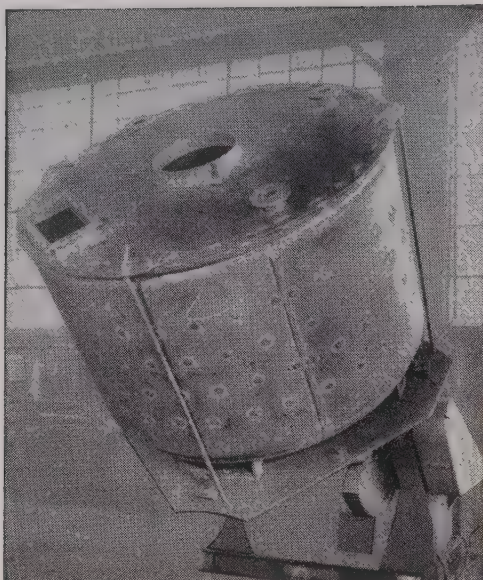
• You can be sure of outstanding quality if your weldments are produced by Van Dorn. For Van Dorn has complete fabricating facilities... experienced design engineers... specially trained workmen... 77 years' experience in metal working.

*Consult us about your requirements—no obligation, of course. The Van Dorn Iron Works Co., 2685 East 79th St., Cleveland 4, Ohio.*



*Send For*  
**FREE WELDMENT BOOK**

*Profusely illustrated; describes the many advantages of Weldments, and Van Dorn's extensive facilities.*



(Concluded from p. 138)

September 30-October 3, Association of Iron Steel Engineers: Fall meeting and exhibition, Hotel Statler and Public Auditorium, Cleveland. Association address: 1010 Empire Bldg., Pittsburgh 22. Director: T. V. White.

## OCTOBER

October 6-10, National Hardware Show: Greenbrier, White Sulphur Springs, W. Va. Meeting director: Frank Yeager.

October 9, American Iron & Steel Institute: Regional technical meeting, William Hotel, Pittsburgh. Institute address: Fifth Ave., New York 1. Meeting director: Frank Ragland.

October 11-14, National Association of Welding Material Dealers Inc.: Fall meeting, Los Angeles. Association address: 271 Madison Ave., New York. Secretary: Clinton White.

October 13-17, American Institute of Electrical Engineers: Fall general meeting, New Orleans, La. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.

October 16-17, Gray Iron Founders' Society Inc.: Annual meeting, Hotel Cleveland, Cleveland. Society address: 210 National City Bldg., 6th St. Bldg., Cleveland. Secretary: Donald H. Workman.

October 16-18, Foundry Equipment Manufacturers Association: Annual meeting, Greenbrier, White Sulphur Springs, W. Va. Association address: Engineers Bldg., Cleveland 14. Secretary: Arthur J. Tuscany.

October 18-19, American Society for Metals: Annual seminar, Benjamin Franklin Hotel, Philadelphia. Society address: 7301 Euclid Ave., Cleveland 3. Secretary: W. H. E. man.

October 19-21, Conveyor Equipment Manufacturers Association: Annual meeting, Greenbrier, White Sulphur Springs, W. Va. Association address: No. 1 Thomas Circle, Washington 5. Executive vice president: R. C. Sollenberger.

October 20-22, Packaging Institute: Annual meeting, Hotel Commodore, New York. Institute address: 342 Madison Ave., New York 17. Secretary: L. V. Burton.

October 20-24, American Society for Metals: Annual meeting, Benjamin Franklin Hotel, Philadelphia. Society address: 7301 Euclid Ave., Cleveland 3. Secretary: W. H. E. man.

October 20-24, American Welding Society: Annual meeting, Bellevue Stratford Hotel, Philadelphia. Society address: 33 W. 39th St., New York 18. Secretary: J. G. Maguire.

October 20-24, Society for Non-Destructive Testing Inc.: Annual meeting, Philadelphia. Society address: Box 710, Evanston, Ill. Secretary: Philip B. Johnson.

October 20-24, American Institute of Mining and Metallurgical Engineers: Fall technical session, Philadelphia. Institute address: 230 39th St., New York 18. Secretary: E. H. Robie.

October 20-24, National Metal Congress & Exposition: Convention Hall, Philadelphia. Secretary: W. H. Eisenman, 7301 Euclid Ave., Cleveland 3.

October 22-24, Porcelain Enamel Institute: Annual meeting, The Greenbrier, White Sulphur Springs, W. Va. Institute address: DuPont Circle Bldg., Washington 6. Secretary: John C. Oliver.

October 22-24, Society of Automotive Engineers: National transportation meeting, William Penn Hotel, Pittsburgh. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

October 27-29, National Lubricating Grease Institute: Annual meeting, Edgewater Hotel, Chicago. Institute address: 4638 Nichols Parkway, Kansas City 2, Mo. Executive secretary: Harry F. Bennetts.

October 27-29, American Gear Manufacturers Association: Fall meeting, Edgewater Hotel, Chicago. Association address: Empire Bldg., Pittsburgh 22. Executive secretary: John C. Sears.

October 27-30, American Gas Association: Annual meeting and exposition, Municipal Auditorium, Atlantic City, N. J. Association address: 420 Lexington Ave., New York. Secretary & convention manager: Kurwin Boyes.



*Who has tried it?*

*Has it been successful?*

*What can new users expect?*

## **PALMOSHIELD**

Six months ago Palmoshield was introduced to readers of this magazine as the first workable replacement for imported palm oil in cold rolling operations. At that time we listed four advantages for the new lubricant.

1. Palmoshield is produced in the heart of the steel industry. Users are not dependent on overseas shipment.
2. Palmoshield is made from domestic materials so freely available as to supply all American steel production.
3. Palmoshield need not be stockpiled by the user, yet it does not deteriorate in storage.
4. Palmoshield is subject to exact chemical control. You can specify free fatty acid content to  $\frac{1}{2}\%$ —and get it.

The record of the past six months in various types of cold rolling operations have fully justified each of these claims.

### **Mill Use Establishes Two New Benefits**

On the basis of orders delivered and actual mill experience, we feel Palmoshield now offers new users two additional advantages:

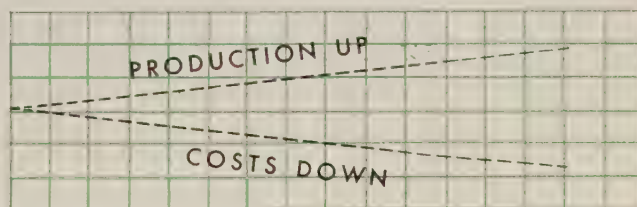
*To Purchasing Agents.* The price of Palmoshield is not artificially controlled. It rises and falls freely with the domestic fat market. In the past six months users have received five voluntary price cuts totaling 33%.

*To Operators.* Mill experience indicates that the use of Palmoshield improves production.

Palmoshield requires absolutely no changes in rolling mill operation.

Use of Palmoshield results in quicker to gauge in better shape.

Water break tests show that Palmoshield washes grease-free under conventional cleaning operations. The result—increased tonnage at less cost.



### **Quick Acceptance by Major Steel Producers**

Public "name dropping" is not our policy. But we can state that nearly two-thirds of the major tin plate mills in this country and Canada are now using Palmoshield either in regular mill operation or for on-the-job test runs, and with uniformly satisfactory results. On request, an Ironsides representative will give you, in person, case-history facts on Palmoshield to help you decide whether to test this new lubricant in your mill.

Palmoshield is available for same-day shipment in 55-gallon drums and tank car lots. For details write The Ironsides Company, 270 West Mound St., Columbus, Ohio.

SPECIAL LUBRICANTS and PRESERVATIVES

**IRONSIDES**

SHIELD  
PRODUCTS

**PALMOSHIELD**



# You get *MORE* than just steel

**Personalized service** is the big “plus” you get when you come to us for your warehouse steel requirements.

Warehouse steel is a bargain for you when you take full advantage of the “no extra charge” service United States Steel Supply’s team of technical and service experts will give you.

Full information on available steel supplies . . . current prices . . . latest in production techniques . . . machinery and shop supplies . . . will be brought to you *personally* by the United States Steel Supply salesman who regards your needs as his personal responsibility.

Get more than just steel  
by calling your source of personalized steel service . . .

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UNITED STATES STEEL



# New Products and Equipment

## Engine-Driven Welder

USE REPLY CARD—CIRCLE No. 1

Lightweight engine-driven welder, type EW-20, that can also supply 110-v, 60-cycle, single-phase power from a conventional plug-in outlet, is announced by Westinghouse Electric Corp., Pittsburgh 30, Pa. Nominal rating of the welder is 200 amp, 40 v, 60 per cent duty cycle, with current range from 40 to 250 amp in accordance with NEMA standards.

During off-welding periods, auxiliary power of 3 kw at 100 per cent power factor, or 2 kva at 80 per cent power factor, are available for lights and power tools. During welding periods, about 300 w auxiliary power is available for this purpose.

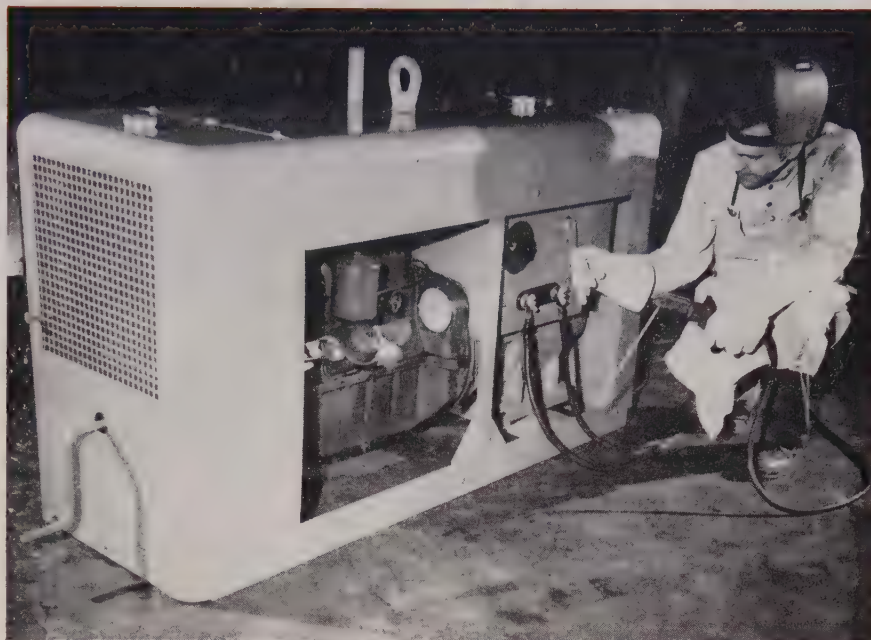
Coupled to a Ford 120—a 4-cycle, 4-cylinder water-cooled industrial power unit—the self-excited compound-wound generator functions both as a direct current generator and a single-phase alternator for auxiliary power. Welding current is controlled in four ranges by a tap switch and shunt field rheostat. The alternating current circuit includes conventional outlets, a voltmeter and a breaker with overload protection. For portability, two-wheel running gear suitable for high-speed road towing is available.

## Motor Uses 110 or 220 Volts

USE REPLY CARD—CIRCLE No. 2

Single phase variable speed motor, a modification of its type VA Varidrive line permitting use of 110 or 200-v, is announced by U. S. Electrical Motors Inc., Box 2058, Los Angeles 54, Calif. Motor is designated type VA-C and is made in  $\frac{1}{4}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$  and  $\frac{3}{4}$ -hp ratings. It provides speed in a ten to one ratio, with the range from 4 to 10,000 rpm.

Speed can be changed instantly to desired rate without stopping by simple control dial adjustment. Design eliminates need for an external speed changing device or gear box. Unit occupies little more room than a standard fixed speed motor.



LIGHTWEIGHT TYPE EW-20 WELDER  
... doubles as conventional single-phase power supply

## Portable Spray Gun Supply Pump

USE REPLY CARD—CIRCLE No. 3

Gray Co. Inc., 1012 Sibley St., Minneapolis 13, Minn., offers a portable heavy-duty spray gun supply pump that works directly from 5 or 10-gallon original containers. The air-operated, double-action reciprocating unit is designed to ease paint handling by plant maintenance departments. It can be used as a portable sprayer with the company's Sta-Level hand truck.

Separate air-operated, dual blade agitator keeps materials mixed independent of paint pump operation. Blades are non-sparking aluminum, adjustable to any depth. Absence of air pressure on the material reduces aeration to a minimum. Company reports applications extend to production departments, where it should work an advantage

in handling finished jobs requiring a fast setup. Pump can handle many abrasive-type materials, or spray most of the vinyl and plastic base coatings. A 10-gallon container is provided for special mixing conditions.

## Wet Blaster Finishes Tools

USE REPLY CARD—CIRCLE No. 4

Abrasive wet blast machine made for producing refined finishes on production tools is offered by Abrasive Wet-Blast Inc., Niles, O. In operation, special abrasives are suspended in water and applied by air pressure. Metal removal is said to be negligible and close tolerances are retained on accurately machined tooling.

Finishing action is designed to increase capillary attraction for lubricants, reduce friction and increase tool life between grinds.

## Self-Opening Die Head

USE REPLY CARD—CIRCLE No. 5

Stationary self-opening die head with a range from No. 4 to  $\frac{5}{8}$ -inch diameter is offered by Landis Machine Co., Waynesboro, Pa. Called 5 HH Landmatic, it is designed for application to turret lathes, hand and automatic screw machines employing a stationary type head.

## REPLY CARDS

on page 161 will bring  
you more information on  
any new products and  
equipment in this section.



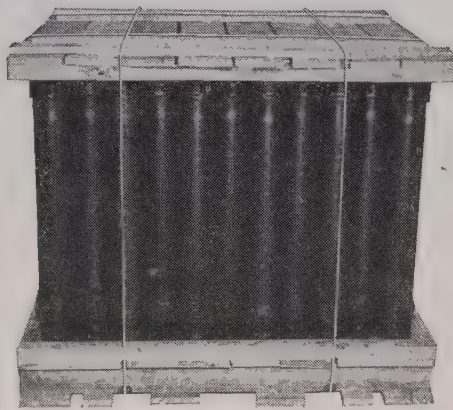
# U-S-S Gerrard Steel Strapping fits all your tying jobs better!

● Gerrard Round Steel Strapping is versatile enough for all types of packing, from light cartons to large crates, from circular packages to odd-shaped bundles and heavy pallets.

Gerrard Strapping complies fully with Army-Navy specifications JAN-P-106A, JAN-P-107, and JAN-P-108 for overseas packing. It assures a tight, secure tie to final destination.

Call a Gerrard engineer for further information about the grade of Gerrard Round Steel Strapping and the type of Gerrard machine that will best fit your specific tying needs.

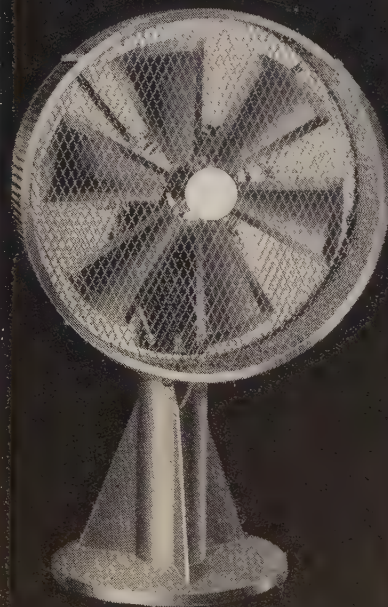
**GERRARD STEEL STRAPPING DIVISION**  
**UNITED STATES STEEL COMPANY**  
4745 S. Richmond St., Chicago 32, Ill.



Pallet reinforced with Gerrard Round Steel Strapping permits quick packing and easy handling of shell cases.

**U-S-S GERRARD ROUND STEEL STRAPPING**

**UNITED STATES STEEL**



• Ruggedly made to withstand severe use . . . advanced designing in fan blades . . . rigidly mounted and securely locked in place . . . well balanced and readily portable by overhead crane or auxiliary truck. Stationary and oscillating types with either pedestal (floor mounting) or bracket (wall mounting).

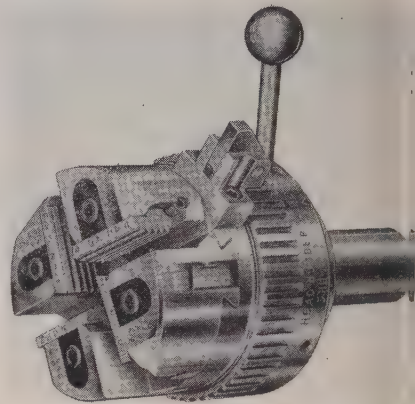
**B. F. Perkins & Son, Inc.**  
HOLYOKE, MASSACHUSETTS  
*Manufacturers of Industrial Machinery Since 1873*

# PERKINS MAN COOLERS

TRADE MARK REGISTERED UNITED STATES PATENT OFFICE

Working parts are made of special alloy steel, hardened and precision ground.

Size adjustment mechanism is built to provide positive locking action. This arrangement consists of a pivoted latch held in engagement with notches on the adjusting ring by spring tension. To adjust the head, latch is depressed and adjusting ring rotated the re-



... size adjustment gives positive locking

quired amount manually. Notches are located on the ring so a movement of one notch will provide a corresponding movement of 0.001 inch on the pitch diameter of the workpiece.

Opening action is obtained by interrupting the forward travel of the turret slide or carriage. The pull-off action is not desired, however, can be opened by hand. Chisel holders operate in dovetail slots in the head body.

## Portable Flame Cutting Unit

USE REPLY CARD—CIRCLE No. 6

Portable, hand-operated flame cutting machine is announced by American Pullmax Co. Inc., 2425 N. Sheffield Ave., Chicago 14, Ill. Weighing 19 pounds, the all-purpose unit will cut plate from 1/8 inch to 2 1/4 inches. Included in the oxyacetylene flame cutter's job capacity are straight, I-beam and bevel cutting, and circle cutting to a radius of 1 inch. Torch can be set at any angle for bevel cutting. Graduations in 5-degree increments are inscribed in the torch holder body.

Cutter, called the Cadet, has a self-contained electrically driven motor. Table is attached to the machine, giving proper selection of cutting speed, oxygen pressure and



it's

OK

let 'er go!

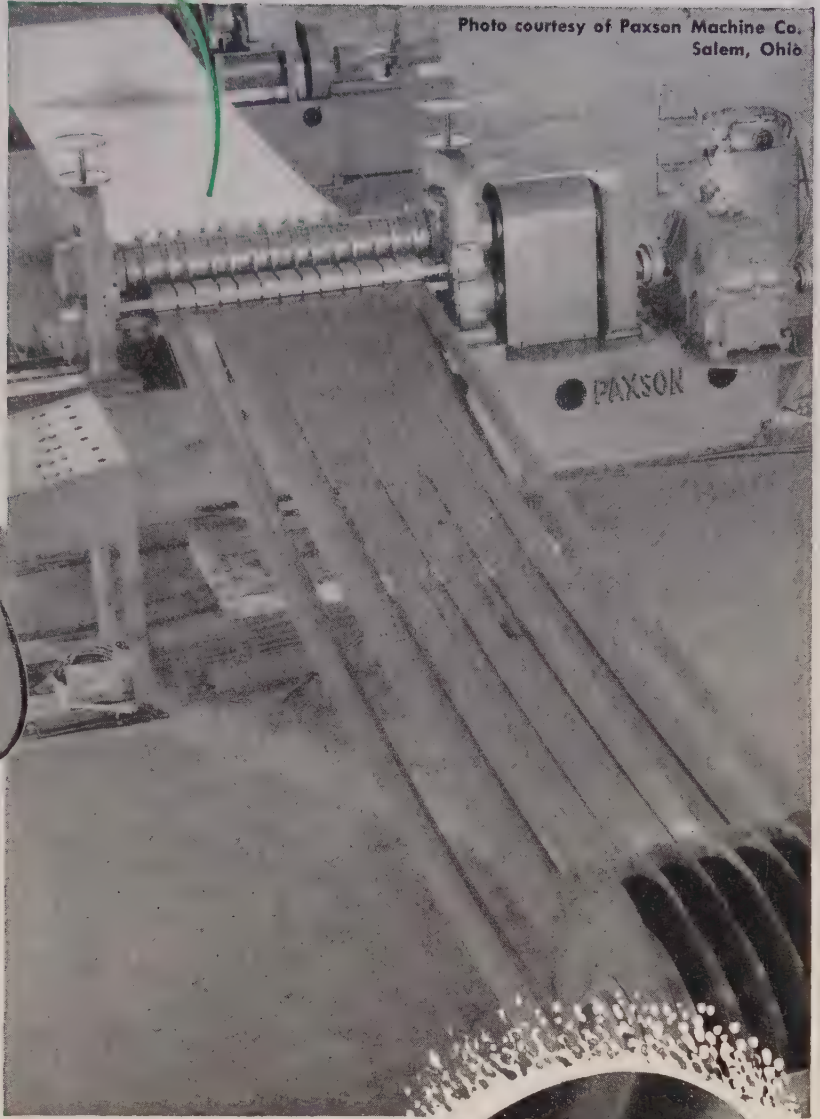


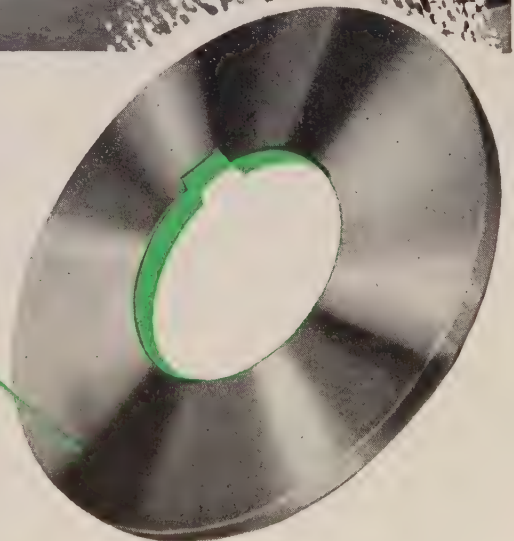
Photo courtesy of Paxson Machine Co.  
Salem, Ohio

## the gang's all here

... ready to knock down production costs—because OK Gang Slitter Knives run hour after hour without re-grinding giving you top machine productivity at all times. Here's why: exact metallurgical specifications for our steel—an exclusive heat treating process to give uniform hardness and temper—special grinding and finishing to tolerances of  $\pm .00025$  or finer.

Producers for the Metal Working Industry of:

SLITTER KNIVES • SHEAR BLADES • ROTARY SHEAR KNIVES  
HARDENED SPACERS • HARDENED WAYS, GIBS, RACES



**THE OHIO KNIFE CO.**

C I N C I N N A T I 2 3 , O H I O



# Every Facility For Producing, Machining

# ARMOR



WELDED FABRICATION OF  
SUBASSEMBLIES . . . . .  
**ANOTHER STANDARD STEEL  
SPRING COMPANY SERVICE**

The sparks are flying in many of our plants where armor plate is being subassembled for customers with pads welded in place, etc. This is an additional service made possible through the diversified talents of our subcontractors. It helps speed the production of armored vehicles, lower costs and spreads the work load.

**Standard Steel Spring Company .** ARMOR PLATE DIVISION



fabricating . . .

# PLATE for Ordnance

Our integrated group of subcontracting plants is staffed and equipped to turn out armor plate in huge volume. Whether your needs are for large or small parts in flat, blanked or formed shapes—heat treated, fully machined, even subassembled—we have unexcelled facilities and the know-how to do the work with dispatch and to exacting quality standards.

Our services include *everything*—from engineering the parts, through procurement and tooling, to expediting and final inspection. You'll save time and money, gain every production assist when you address your armor plate inquiries to us.



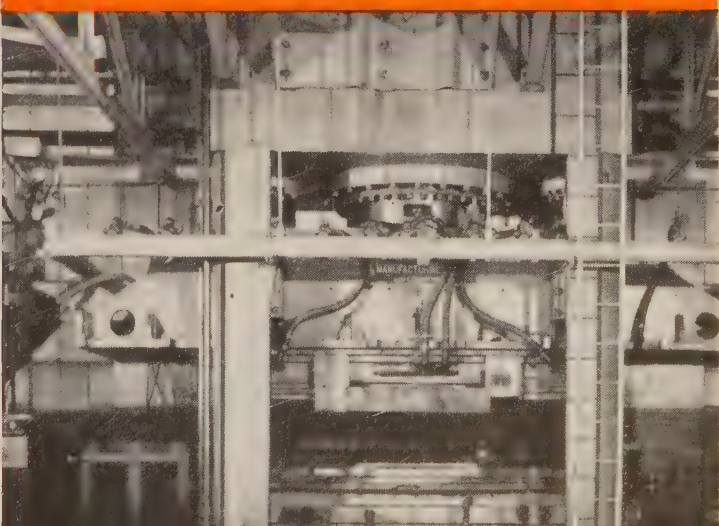
Forming and heat treating bay in typical subcontractor's plant

Multi-cutting tank armor with torch guided by Travograph



Edge grinding armor plate with rail mounted machine

2500 ton press used in quenching and forming operations





## OUT OUR WAY



## First in value— First in sales **SOL-SPEEDI-DRI**

Accept no substitutes! Pound for pound, dollar for dollar, SOL-SPEEDI-DRI gives you *more for your money*, all factors considered. That's why it's America's sales leader in the oil and grease absorbent field. Selected raw materials, careful processing, and laboratory controls keep quality always uniform. Send the coupon today for generous free sample and descriptive literature about how to "dry clean" your floors with SOL-SPEEDI-DRI.

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Inquirers in New York, New England, and New Jersey should write to Speedi-Dri Corp. Elsewhere in U.S. to Waverly Petroleum Products Co., 1724 Chestnut St., Phila. 3, Pa.

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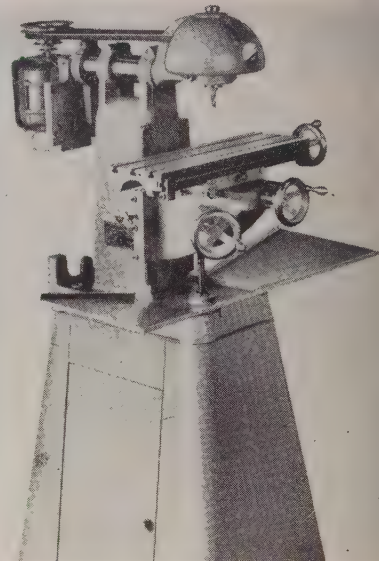
NEW PRODUCTS and EQUIPMENT

torch tips. Torch is adjustable vertically and horizontally.

## Pedestal Mount Made for Miller

USE REPLY CARD—CIRCLE No. 7

Pedestal, rolled from a steel sheet, can be supplied for milling machines made by Benchmark Mfg. Co., 1835 W. Rosecrans Ave., Gardena, Calif. Pedestal is table height, matching base dimensions of the mill, then flaring out at the foot to provide a secure mounting. Inside area accommodates the com



... inside area for coolant or storage

pany's M-21 coolant system or can be used for storage. Pedestal is 30 inches high, 10½ x 18 inches at the top and 18 x 26 inches at the base. Door size is 11½ x 22 inches.

Another accessory, an all-steel splash tray made to fit the company's standard base, is designed to divert coolant to the sump return. Width and length are sufficient to afford protection over full table extensions. Edges are rolled and beaded for extra strength and to eliminate sharp corners. Flanges are provided for fastening to the base.

## X-Ray Diffraction Unit

USE REPLY CARD—CIRCLE No. 8

Compact XRD-4 x-ray diffraction unit, developed for film technicians only, is announced by X-Ray Dept., General Electric Co., 485 Electric Ave., Milwaukee 14, Wis. Apparatus requires about half the floor space taken by the company's all-purpose unit. Its high voltage



# LONGER LIFE IN EVERY LINK

## ... A Chain for Every Drive!

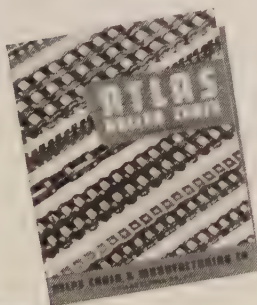
### ATLAS OFFERS YOU A FULL LINE OF PRECISION-BUILT "SUPER LIFE" ROLLER CHAIN FOR EVERY SERVICE

From tiny timers to big tough drives . . . from fractional horsepower motors to mighty giants, Atlas offers you a wide selection of durable "Super Life" roller chain and attachments—all precision-built for extra wear . . . smoother, positive power.

Singles or multiples . . . regular or heavy duty . . . standard or extended pitch . . . steel, stainless steel or bronze, you'll find the rugged chain you need in the complete Atlas line.

Precision-made from specially selected steels, Atlas gives you longer life in every link. Pins and bushings are *case-hardened*, each link plate and roller *toughened*—by an exclusive Atlas heat-treating process. Built-in stamina provides extra strength to take the heaviest loads—whether uniform, uneven or severe shock.

Whatever your requirements, you can depend on Atlas for longer wear over the long pull. An Atlas engineer will gladly recommend the right roller chain for years of efficient, trouble-free service.



### ATLAS CHAIN AND MANUFACTURING CO.

Philadelphia 24, Pennsylvania



Send For New Roller Chain  
Fact Book No. ARC-52S



# ATLAS ROLLER CHAIN

EXTENDED  
PITCH

SINGLE  
LINK PLATE

DOUBLE  
LINK PLATE

EXTENDED  
PINS

SINGLE  
WIDTH

DOUBLE  
WIDTH

ANY  
MULTIPLE  
WIDTH  
DESIRED



# Speed Up Material Handling WITH A **UNIT 357**

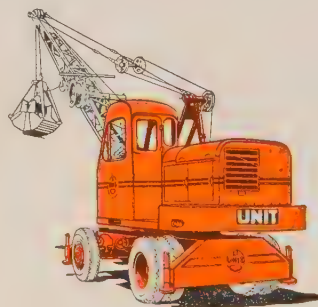


**It's SELF-PROPELLED**  
**It RIDES ON RUBBER**

Tough operating conditions mean nothing to this rugged, service-proven mobile crane. Operates with top speed, ease, and economy in any season or weather. It's designed to handle all types of jobs . . . dismantling, moving or erecting machinery . . . loading and unloading structural iron, pipe, bars, lumber and equipment of all types. Takes high cost and hard work out of material handling jobs for trouble-free, reliable operation. Reduces operator fatigue and increases production.

The UNIT 357 has quick and easy maneuverability, even in cramped yard operations. It is operated by ONE man . . . powered by ONE engine . . . swings in a 360° circle. Streamlined FULL VISION CAB gives operator complete visibility in all directions. Speeds up job. Promotes safety.

Get the complete 357 story . . . its low cost . . . its fast delivery . . . its many modern and exclusive features. Write for Catalog L-301.



UNIT 357 Mobile Crane equipped with clamshell bucket. Can also be had with crane hook or magnet.

**UNIT CRANE & SHOVEL CORP., 6521 W. Burnham St., Milwaukee 14, Wis., U.S.A.**

Crawler and Mobile models — 1/2 and 3/4 Yd. Excavators. Cranes up to 20 tons capacity.



SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHES • MAGNETS

A 6021-2/3-C

transformer provides fullwave rectified, end-grounded voltage up to 50 kvp at 50 milliamperes continuously. Tube current stabilizer is an instantaneous electronic control that holds tube current constant within plus or minus 0.02 per cent or better.

Height of the target of the CA-7 x-ray tube is nominally 10 1/2 inches



... provides x-ray source for film technicians

but is adjustable from 8 to 13 inches above the top. Camera track can be adjusted from 0 to 10 degrees below horizontal for optimum target takeoff angle.

## Pushbutton Control Chain Hoist

USE REPLY CARD—CIRCLE No. 9

Addition of a pushbutton control model to its line of Comet electric chain hoists is announced by Chisholm-Moore Hoist Corp., Fremont Ave., Tonawanda, N. Y. Model is available in capacities from 250 to 2000 pounds. It operates from any single phase lighting circuit, 220 or 440-v power line.

Other features include flexible welded steel load chain, upper and lower safety limits and helical gears. Model has a positive chain guide, precision bearings and fully enclosed mechanism.

## Lifter Handles Heavy Rolls

USE REPLY CARD—CIRCLE No. 10

Hydraulic lifter made for raising and lowering heavy rolls in restricted areas is available from Service Caster & Truck Corp., Allenton, Mich. Lifter loads or unloads

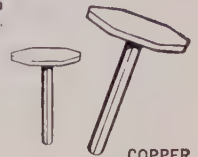




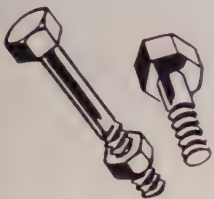
Items like these  
available **QUICKLY** at  
**CHASE®** warehouses



COPPER NAILS  
and TACKS



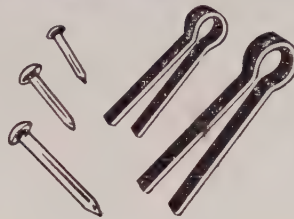
COPPER  
STORM NAILS



BRASS and BRONZE  
BOLTS and NUTS



BRASS and BRONZE CAP,  
MACHINE and LAG SCREWS



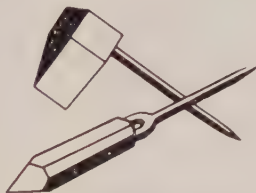
BRASS COTTER PINS  
BRASS ESCUTCHEON PINS



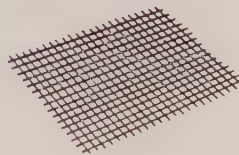
BRASS and COPPER RIVETS, BURS



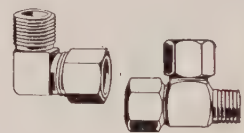
BRASS, BRONZE and  
COPPER WASHERS



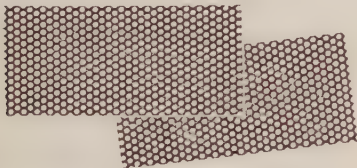
SOLDERING COPPERS



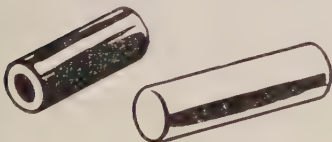
INDUSTRIAL WIRE CLOTH and  
BRASS STRAINER CLOTH



INDUSTRIAL and  
AUTOMOTIVE FITTINGS



PERFORATED METAL IN  
BRASS, BRONZE and COPPER



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CALL US FOR ANYTHING from Bearing Bronze Bars to Brass or Bronze Bolts . . . or any other brass or copper item for maintenance, repair, operating or production.

Twenty-three Chase warehouses are located in major industrial centers from coast to coast. Phone the one nearest you. We can usually fill your orders from stock.

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**NONE BETTER... America's First and Safest**

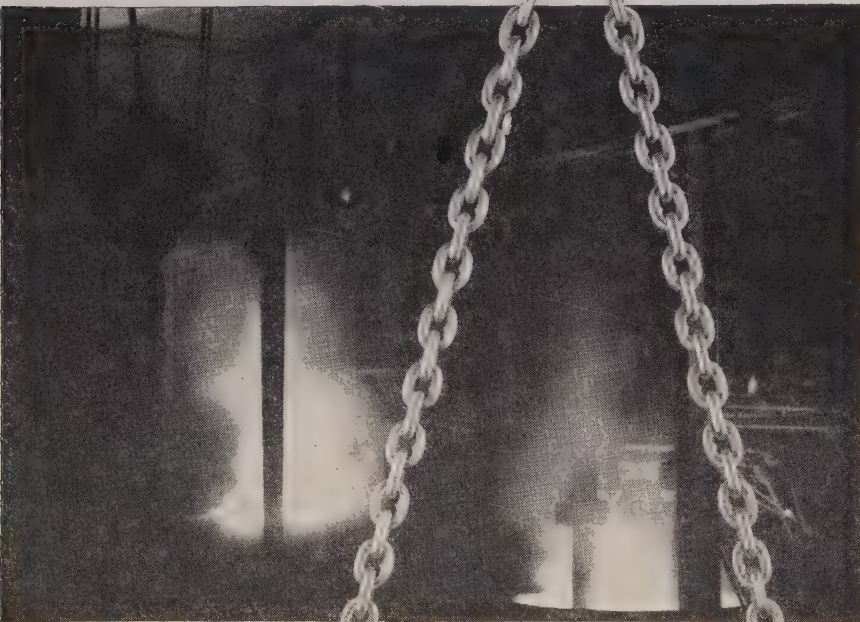
# HERC-ALLOY

## SLING CHAINS

**STRENGTH**—Size for size, no other sling chain offers a greater tensile strength. HERC-ALLOY will not crystallize—never requires annealing.

**SAFETY**—HERC-ALLOY Sling Chains are made to your specifications. Every new sling carries a written guarantee, is registered and tested before shipping. This registration serial number is carried at the top link.

● Serial number permanently affixed near top link for positive identification.



● Identify HERC-ALLOY by the patented Inswell side weld with the extra swell of metal on the inside of the link.



**EFFICIENCY**—Lighter, stronger HERC-ALLOY Sling Chains feature the exclusive short, narrow link design which holds firmer, less tendency to kink, less gouging. Workmen handle HERC-ALLOY with less effort.

**PREFERENCE**—Men who buy and use sling chains are influenced only by facts learned through experience. HERC-ALLOY Sling Chain preference has been built up over the years, not just by what we say, but by how HERC-ALLOY performs on the job.

*Write* for Data Book No. 3 which contains much useful manufacturing and application information on HERC-ALLOY Sling Chains.

## COLUMBUS McKINNON CHAIN CORPORATION

(Affiliated with Chisholm-Moore Hoist Corp.)

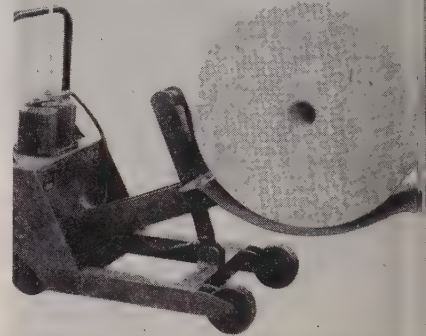
**GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.**

**District Offices: New York • Chicago • Cleveland**

Other Factories at Angola, N. Y., Dixon, Ill., St. Catharines, Ont., and Johannesburg, South Africa.

rolls weighing a maximum 1000 pounds from presses and other roll-fed machinery. It is designed to protect material from damage during speed roll changing and handling. One effect can be elimination of need for overhead cranes and slings; another, increased safety.

Unit is built to fit a specific job. It can be made with trunnions for handling heavy rolls that have



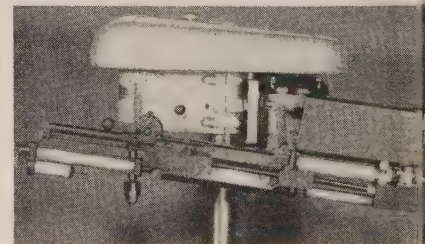
... hydraulic action loads roll-fed tools

shaft or spindle, or with a scoop for handling cylindrical objects that have no shaft. For horizontal movement, lifter is mounted on four unbreakable steel casters, two rigid and two swivel for easy steering. Standard units are hand operated; electric power can be installed if necessary.

## Deep Hole Drill Press Feed

USE REPLY CARD—CIRCLE No. 11

Reduced drill breakage in deep hole drilling operations is attributed to the Sensitorque press feed made by Bellows Co., 230 W. Market St., Akron 9, O. The feed does not depend on predetermined time



... withdraws drill only at danger point

ing cycles for its operation. By measuring drill torque, it withdraws the drill only when strain approaches the danger point. This action is designed to eliminate needless withdrawals, while exerting positive safeguard over the



# THE *Right* KNIFE CLEARANCE FOR EVERY PLATE THICKNESS

## ONLY STEELWELD SHEARS HAVE THIS SIMPLE KNIFE ADJUSTMENT

It is simple, fast and easy to adjust the knife clearance on a Steelweld Pivoted-Blade Shear to suit every plate thickness. No bolts to loosen! No bed to move! No feeler gauges required!

Only turn a crank and watch a dial. That's all there is to it. The large easily-read dial indicates the clearance between knives in thousandths of an inch and also shows the plate thickness that may be cut with any knife setting. Because of the ease with which knife adjustments are made, every cut made on Steelweld Shears is the best cut possible—straight, smooth, accurate. And of importance, knives remain sharper for longer periods.

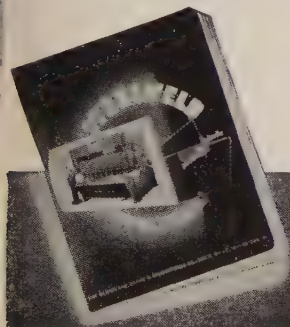
Steelweld Shears are built for thicknesses of 12 gauge to 1½ inch and for lengths of 6 to 18 feet.



### GET THIS BOOK!

CATALOG No. 2011 gives construction and engineering details. Profusely illustrated.

THE CLEVELAND CRANE & ENGINEERING CO.  
7811 EAST 282ND STREET • WICKLIFFE, OHIO



# STEELWELD *PIVOTED* BLADE SHEARS



drill. Effect should be reduced production cost.

Feed consists of a Sensor cabinet mounted on the company's standard press feed model. The sensing unit operates through aircraft-type relays, without electronic tubes. When drills, even those as small as 0.094-inch, become strained through any cause, an electrical impulse is transmitted instantly, causing the feed to withdraw the drill. Return to working position is immediate and rapid and amount of withdrawal is adjustable.

### Unit Has Multi-Handling Design

USE REPLY CARD—CIRCLE No. 12

Construction for use as a pallet, stake pallet or materials handling box is attributed to the all-steel Erect-A-Pallet, introduced by Phillips Mine & Mill Supply Co., 2309 Jane St., Pittsburgh 3, Pa. Unit is composed of three basic sections: Heavy-duty, eight-way entry pallet for fork or pallet lift truck use; four corner stakes; and sides of heavy-gage corrugated

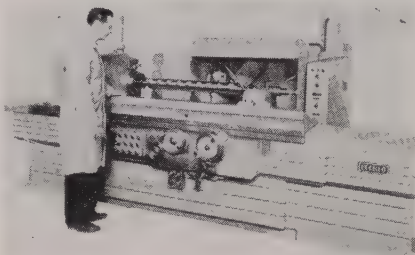
steel that slide in corner stakes.

Carrying capacity is 4000 pounds; tiering capacity, 16,000 pounds. Two sizes available are 48 x 48 inches or 40 x 48 inches.

### Precision Thread Grinder

USE REPLY CARD—CIRCLE No. 13

Large-capacity machine made for precision grinding threads, worms and other forms is announced by Ex-Cell-O Corp., 1200



... automatic cycles speed production work

Oakman Blvd., Detroit 32, Mich. Machine is designed to provide flexibility needed for toolroom work, accuracy required in precision thread and gage work and

automatic cycles to speed production operation. Tool grinds single or multiple threads, left or right hand, in any pitch from 1 to 128 threads per inch. It can be used with single or multiple-rib grinding wheels. Also available is an attachment for grinding accurate internal threads.

Relation of work spindle speed to table feed is adjustable to produce various leads. Most standard leads can be obtained by the change-gear set standard with this machine. Set in neutral position, lever adjustment permits indexing the work spindle for grinding multiple-start threads and worms. Automatic indexing attachment also is available.

### Tilt Top Table Positions Parts

USE REPLY CARD—CIRCLE No. 14

Truck with tilting top, built for positioning parts in maintenance operations is announced by Hamilton Tool Co., Hamilton, O. Table top, 24 x 96 inches, rotates 360 degrees on a horizontal axis. It can be locked in place wherever stopped.

# STEEL FORGINGS



## NATIONAL FORGE & ORDNANCE COMPANY

Irvine, Warren Co., Penna.

STEEL MAKERS • FORGESMITHS • HEAT TREATERS • MACHINISTS • MACHINERY AND TESTING EQUIPMENT MFRS.



ed. Back plate supports broach holders and fixtures as table tilts the work to convenient position for service. Table surface is 30 inches from the floor.

Truck rides on two wheels and four casters for easier maneuverability in restricted space. Floor rocks at each end prevent unwanted movement. Table capacity is 3000 pounds. Alternate specifications for special jobs are available.

### Instrument Speeds Titrations

USE REPLY CARD—CIRCLE No. 15

Improved Titrimeter for quantitative determination of solutions is announced by Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

The instrument features a completely new stand, improved stirrer and control box, and integral provisions for microtitrations and moisture determination. The stand is a massive, functional casting supporting the burettes and sample beaker. Its hood protects all connections from hand capacity ef-

fects. Stirrer eliminates stirring electrodes of former models. In their place are magnetic stirrers and fixed electrodes, eliminating all shafts and belts.

### Truck Has Reversible Shelf

USE REPLY CARD—CIRCLE No. 16

Carrying area is doubled on a 2½-ton capacity materials mover by use of reversible shelves, de-



... doubles 2½-ton mover's carrying area

veloped by Market Forge Co., Everett, Mass. All-steel shelves incorporate a flat and a railed side.

Used with the flanged side down, they handle bulky overhanging items; with flanged side up, they can carry smaller parts and parcels without danger of losing part of the load. Where even greater area is necessary, more than one shelf can be used at a time. A rim guard is also available to hold goods in place on the main 14-sq ft freight deck.

Standard ¾-hp motor gives maximum speeds from 3 to 5 mph. It provides adequate power to climb 5 to 10-degree inclines, depending on the load. A 1-hp motor is also available as optional equipment.

### Cart Handles Sheets, Bars

USE REPLY CARD—CIRCLE No. 17

Rapid moving and feeding of steel sheet and bar stock should be gained with a stock and feeder cart introduced by Jarke Mfg. Co., 5407 N. Broadway, Chicago 40, Ill. Portable cart provides an efficient means for bringing material from storage to a punch press at the proper working level. Ten-gage

(FLAT DIE)

# FOR INDUSTRY





**Tiny holes? . . . . . Easy!**

**Accurate holes? . . . . . Easy!**

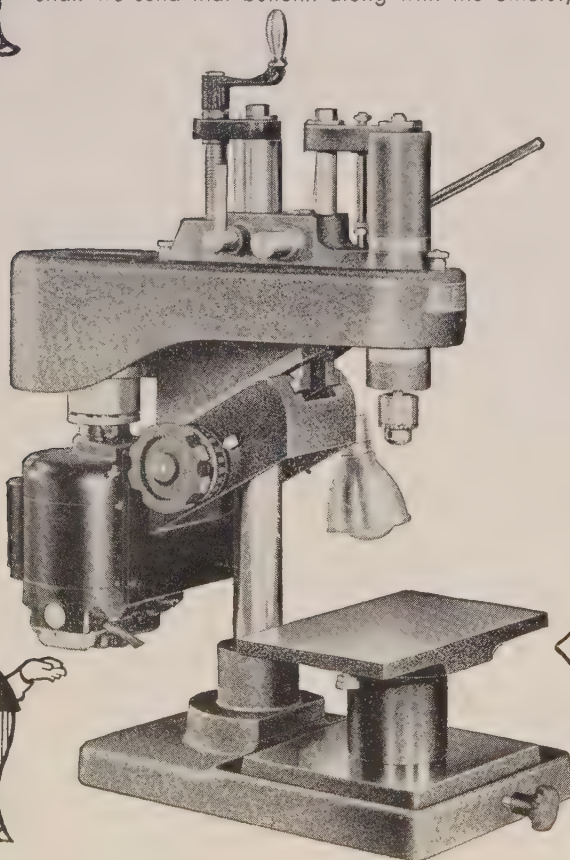
**Holes on production schedules? . . . . . Easy!**

**Tiny, accurate holes on production schedules? . . . WOW!**

Hamilton Drilling Machines can do it!  
And withdraw the drill undamaged  
from hole after hole after hole!

### LEARN HOW!

Write for the series of Hamilton Drilling  
Machine Bulletins and Price Lists.  
(There is also a companion Tapping Machine.  
Shall we send that bulletin along with the others?)



Shown here is the Hamilton  
Varimatic, Super Sensitive, Vari-  
able Speed, Small Hole Drilling  
Machine, one of four models,

each particularly adapted to the  
work for which intended, all  
equally precise.



steel top is flanged on all sides to  
gain rigidity and eliminate sharp  
edges.

Equipped with swivel-type, free-  
running steel casters, the unit is  
easily transported under full load  
by one man. Table has 2000-pound  
capacity, is adjustable in height  
from 32 to 42 inches and inclinable  
to a maximum 45 degrees. Heavy  
end flanges serve as mounting sur-  
faces for oilers during feeding op-  
erations.

## Electric Fork Truck Line

USE REPLY CARD—CIRCLE No. 18

Speed, direction and braking are  
accomplished through one master  
control lever in an electric fork-  
truck line announced by Lewis  
Shepard Products, Watertown,  
Mass. Operator has a choice of four



. . . speed, direction, braking in one control

speeds forward or reverse. Incorpor-  
ation of magnetic controls per-  
mits automatically timed accelera-  
tion through each speed when con-  
trol lever is pegged at full speed  
forward. It is unnecessary to stop  
the control at each speed stop.

Company's dynamic braking  
feature provides deceleration to a  
stop without use of mechanical  
brakes. This braking is accom-  
plished through the control lever  
at the operator's hand. The feature  
works to simplify truck control,  
eliminating continual foot brake  
operation.

## Pneumatic Instrument Calibrator

USE REPLY CARD—CIRCLE No. 19

For calibration and testing of  
low pressure instruments and con-  
trols such as flow meters, draft





## Its heart is its one moving part

*With castings in quality as well as in quantity, National Bearing Division helps its customers make better products.*

When a leading pump manufacturer entrusts National Bearing Division with producing vital pump components, and producing them to the exacting standards required, there are some important reasons why.

This Fairbanks, Morse Turbine Pump combines high pumping efficiency with low pumping costs . . . thanks to close-fitting, precision-machined bronze liners and impellers that are easily replaced on the job, at a big saving over new housings.

These castings—particularly the impeller—have to be “right” . . . free from blow-holes,

sand inclusions . . . and must be exceptionally fine-grained. Otherwise lost machining time, before defects are found, can seriously increase production costs.

National Bearing Division was picked to supply castings for the very heart of this Fairbanks, Morse Turbine Pump . . . because of an often demonstrated ability to mass-produce non-ferrous castings to a high standard of uniformity and quality.

If your product requires non-ferrous components, it will pay you to investigate National Bearing Division. We have the foundry facilities and skills that can make important contributions to your product performance . . . with castings in quality as well as quantity. The end result may well save you money, too!

AMERICAN  
**Brake Shoe**

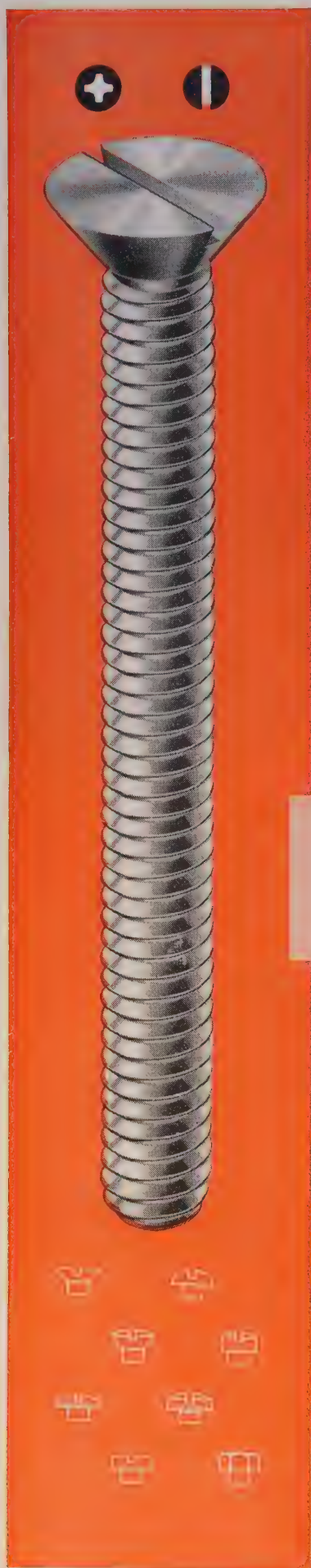
COMPANY

**NATIONAL BEARING DIVISION**

4925 Manchester Avenue • St. Louis 10, Mo.

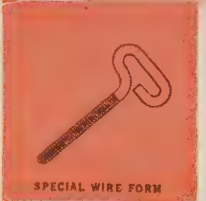
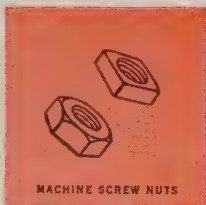
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Whatever type of machine screw you need, Blake & Johnson has it... or can make it for you. Slotted or Phillips heads — in brass and steel, plain or plated. Special designs, sizes, and finishes to order. Blake & Johnson is the dependable source for Twin-Fast® wood screws, stove bolts, tapping screws, special headed products, machine screw nuts, rivets, chaplets, wire forms, automatic screw machine products... in steel, brass, or other alloy metals.

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*fastenings*

# BLAKE & JOHNSON

SINCE 1849

WATERVILLE 48, CONNECTICUT

gages, differential pressure transmitters, with ranges 0-20-inch water-pressure, vacuum or compound, Republic Flow Meters Co. Chicago 47, Ill., offers a portable pneumatic instrument calibrator. It accurately measures pressure or vacuum in increments of 0.01-inch.

## Air Control Valves

USE REPLY CARD—CIRCLE No. 20

Valvair Corp., Cleveland, O., adds a spring centered neutral valve to its line of air control valves. It is available in three and four-way pipe exhaust types and in sizes of 1/4, 3/8, 1/2, 3/4 and 1 inch; pressures to 300 psi. Valve will stop and hold single or double acting cylinders in any position.

## Tapping Chuck

USE REPLY CARD—CIRCLE No. 21

Errington Mechanical Laboratory Inc., Staten Island 4, N. Y., introduces the 000 cone drive tapping chuck that features interchangeability of shanks. It has an oil resistant celeron cone, needle bearings top and bottom of main spindle. Chuck is available with collet chuck or Jacobs rubber flange tap chuck.

## Tin-Lead Stripper

USE REPLY CARD—CIRCLE No. 22

For rapid dissolving of tin, lead and tin-lead alloys, an alkaline chemical has been developed by Enthone Inc., New Haven, Conn. It can also be used to remove solder from torch or iron soldering pieces as well as hot dipped soldered articles.

## Selector Changes Voltage

USE REPLY CARD—CIRCLE No. 23

Brown-Brockmeyer Co., Dayton, O., offers its line of Power-Point motors equipped with the Rotavolt selector as regular equipment. With the selector the motor can be changed from 115 to 230 v, or vice versa, and shaft rotation changed from clockwise to counter-clockwise in about 10 seconds.

## Threadless Pipe Connector

USE REPLY CARD—CIRCLE No. 24

A factory assembled pipe coupling that can be installed in any piping system in less than 60 seconds is announced by Quik-Join.

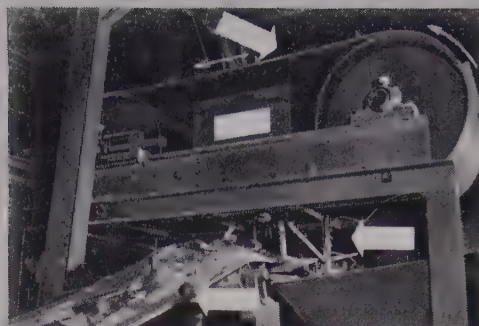




Dings non electric pulley-type scrap separator in operation at a die cast plant.

1

2



Dings Extra-Powerful Self-Cleaning Rectangular takes iron out of shakeout sand.

3

4



Dings Cool Operating Lifting Magnet.



Dings "Hold Tite" magnetically holds castings in position for swing grinding.

## 4 MEANS TO GREATER EFFICIENCY

THE four Dings Magnets illustrated save time, labor, metals and money by doing their specific jobs more efficiently than any other method. Compare the advantages they offer over your present methods:

1

**FOR CRITICAL SCRAP SEPARATION** — Example: *A Non Electric, Permanently Magnetic Pulley Type Separator.* The magnetic PERMA-PULLEY, installed as head drive pulley in a completely self contained belt conveyor unit, takes iron out automatically, without attention, without electricity, without maintenance. Portable models available. Other types to meet any scrap separation requirement.

2

**A SAND HANDLING COST CUTTER** — *the Suspended Self Cleaning Rectangular.* Great power enables magnet to handle the particularly difficult iron extraction jobs. Self cleaning feature makes operation automatic, eliminates "carry-over" of sand with iron.

3

**THE IDEAL SCRAP LIFTING MAGNET** — Lifts more because it's cooler operating. Light weight, moisture-proof, rugged, 4-point chain suspension.

4

**"HOLD TITE" MAGNET CUTS GRINDING LABOR COSTS UP TO 25%** — Firmly holds all shapes of castings up to 1000 lbs. in position for swing grinding. Can be tilted to 7 different positions. Simple to install.

For details on any of the above magnets, use the coupon below.

### SEND THIS COUPON OR DROP A POSTCARD

Dings: Send me Catalog containing full information on:

4709

- |   |   |
|---|---|
| <input type="checkbox"/> Scrap Separators | <input type="checkbox"/> Lifting Magnet |
| <input type="checkbox"/> Rectangular      | <input type="checkbox"/> "Hold Tite"    |

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

S

# Dings

**MAGNETIC SEPARATOR CO.**

4709 West Electric Avenue, Milwaukee 46, Wisconsin



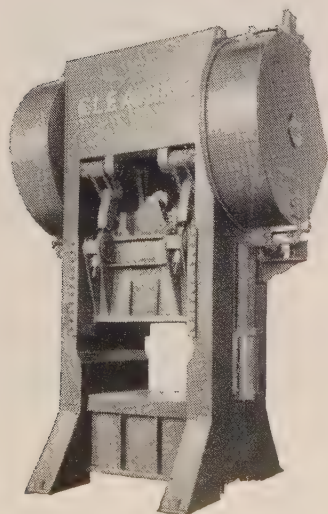


## What Mrs. Updyke doesn't know she knows

This housewife never saw a metal forming press, and "stamping" to her is what you do to letters or with your feet. But when it comes to buying metal articles—appliances, pans, or what have you—Mrs. Updyke almost invariably picks the ones that are press manufactured.

She doesn't know why, isn't even aware that she's showing a preference for a certain kind of manufacturing. But she likes the smooth surfaces and flowing lines that mark the press-made article. She likes the lighter weight. Being a woman, she likes the prices that up-to-date press methods make possible.

Your sales manager knows there are millions of housewives with these very same fixed preferences. As you plan your future production, and future models, it will pay you to consider modern press methods if you want to capture big markets in a highly competitive tomorrow. The first step is to consult Clearing—today.



# CLEARING PRESSES



### CLEARING MACHINE CORPORATION

6499 WEST 65th STREET • CHICAGO 38, ILL.  
HAMILTON DIVISION, HAMILTON, OHIO

THE WAY TO EFFICIENT MASS PRODUCTION

Mfg. Co., Harvey, Ill. No threading or cutting is required. Pipes to be connected are inserted into ends of the coupling body and lock nuts are tightened to desired tightness. The flexible joint will withstand working pressures up to 2000 psi.

### Mercury Switch

USE REPLY CARD—CIRCLE No. 25

Mercury switches, embedded in plastic potting compounds for added protection are offered by Micro Switch, Freeport, Ill. In addition to being more rugged, the embedded designs offer additional means of mounting the switches. The IMPI switch provides less than 1 degree differential angle with an electrical rating of 2 amp, 115 v ac or 1 amp 115 v, dc.

### Indexable Lathe Tool

USE REPLY CARD—CIRCLE No. 26

Futurblade, an indexable lathe tool, is offered by Detroit Milling Cutter Co., Farmington, Mich. Practically the entire shank size is beneath the solid carbide cutting blade and both the latter and the seat on which it rests are super-finished to gage block flatness. Carbide cannot flex or bend under strain. The solid carbide cutting blade can be indexed eight times.

### Communication System

USE REPLY CARD—CIRCLE No. 27

Farmers Engineering & Mfg. Co., Pittsburgh 21, Pa., introduced the Femco Trolleyphone, plug-in model, 2550 series. It is a common communication system; each station is equipped with a press-to-talk microphone and a clear speaker with automatic volume control.

### Ready-Mixed Aluminum Paint

USE REPLY CARD—CIRCLE No. 28

Sheffield Bronze Paint Corp., Cleveland 19, O., has developed Super-Hot, a ready-mixed aluminum paint.

## USE A REPLY CARD

Just circle the corresponding number of any item in this section for more information.



um paint that becomes permanently bonded to the metal surface when it is subjected to heat of 500 to 1600° F. It will not crack, chip or peel. It may be brushed, sprayed or dipped and air dries within 30 minutes after which time heat can be applied.

## Ratchet Repair Kits

USE REPLY CARD—CIRCLE No. 29

Two ratchet repair kits for B-51 (3/8-inch square drive) and S-51 (1/2-inch square drive) Super-ratchets, are announced by J. H. Williams & Co., Buffalo 7, N. Y. In addition to a complete assortment of replacement parts, each kit contains a spanner wrench that fits the retaining ring, the only part requiring a tool for assembly or disassembly.

## Battery-Operated Center Finder

USE REPLY CARD—CIRCLE No. 30

A battery-operated center finder that lights up when point desired is located has been developed by Art-Mil Machine & Mfg. Inc., Columbus, O. Designed for use with milling machines, lathes, jig borers and drill presses where precision work is essential, it provides accuracy to within 0.0001-inch when used to locate working points or on slot and hole centering. It operates on a one-cell battery.

## Cup Grinding Wheel

USE REPLY CARD—CIRCLE No. 31

A cup grinding wheel that retains its sharp cutting edge throughout its service life is introduced by U. S. Rubber Co., New York 20, N. Y. Wheel has a hard shell of tough, resin-bonded abrasive built around a core of rapid-cutting resin-abrasive construction. This shell, which is 3/16-inch thick, resists mushrooming or rounding of the wheels' cutting edge. Wear occurs evenly across the entire face of the wheel.

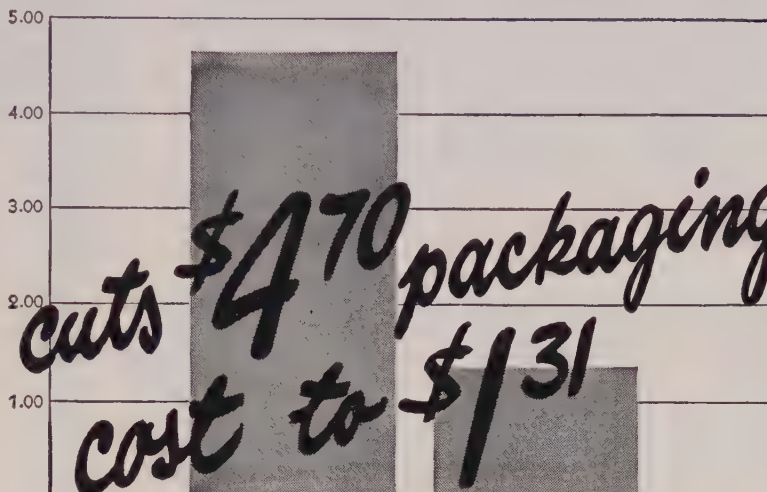


## USE A REPLY CARD

Just circle the corresponding number of any item in this section for more information.



# Vapor from paper STOPS RUST of diesel locomotive parts



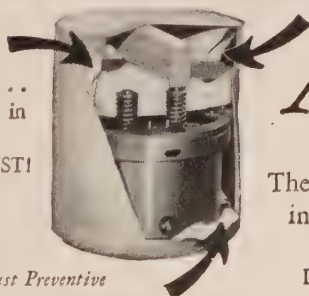
A leading locomotive firm used to dip diesel cylinder heads in an inflammable cleansing liquid. Then moisture had to be removed. This called for cranes and fire precautions. Dried with an air hose, heads were dipped into a varnish-like solution. To keep the sticky coating in place, waxed paper and heavy wooden boxes were "musts". Unpacking involved the same troubles in reverse. A couple of hours with a scrubbing brush came before the heads could be installed.

Today, vapor from paper stops rust. It is Angier VPI\* Wrap. It gives off an invisible protective vapor that is clean... SAFE. As the vapor permeates into deepest cavities, both air and moisture are

made harmless to shiny cylinder heads. No grease or oil is necessary. Now packaging costs are down to \$1.31 from \$4.70. And this doesn't include an average freight savings of 24% on the thousands of different locomotive parts that now are VPI-protected. All parts are ready to use when received... a godsend to men in the repair shops. No bulky equipment is required, so valuable floor space is saved.

If you ship or store metal parts or products, Angier VPI Wrap is meant for you. It may be used as a box liner or an envelope as well as a container insert. For "VPI Facts", send coupon to...

NO OIL OR GOO...  
VPI Wrap inserted in container gives off vapor that STOPS RUST!



# Angier

The Most EXPERIENCED Name in Vapor Rust Preventives

\*® Vapor Rust Preventive

Distributors in Principal Cities

Angier Corp., Framingham 8, Mass.

Name.....

Title.....

(Clip this to your letterhead)

Please send "VPI Facts" as applied to

- |   |  |
|---|--|
| <input type="checkbox"/> Machinery-Industrial, Metal Working, Farm, Office, Construction. | <input type="checkbox"/> Electrical Machinery, Appliances, Products.   |
| <input type="checkbox"/> Transportation Equipment — Auto, Aircraft, Naval, Railroad, etc. | <input type="checkbox"/> Fabricated Products — Cutlery, Hardware, etc. |
| <input type="checkbox"/> Steel in process of fabrication.                                 | <input type="checkbox"/> Ordnance Equipment.                           |
| <input type="checkbox"/> Instruments and clocks.  | <input type="checkbox"/> Other.  |



# YOU MAY Save 3.15 POUNDS PER SHEET\*

WITH

**MicroRold®**

## STAINLESS STEEL

When you order sheet by gauge number the permissible A. I. S. I. variation in thickness is plus or minus 10%. Thusly, if you order 18 gauge, you may receive a sheet .052 thick when .0475 would suit your purpose. Using a standard 18 gauge 36" x 120" sheet as an example, the theoretical weight is 63 pounds, but this weight could permissibly vary between 65.52 pounds and 59.22 pounds.

A sheet of MicroRold .0475 thick with a tolerance of only 3% would weigh 59.85 pounds thus insuring a saving of 3.15 pounds from the theoretical average-weight, or 5.67 pounds from the maximum, while still remaining within the 18 gauge ordering range.

Weight of One Sheet  
of 18 Gauge 36" x 120"  
Plus or Minus 10%

.052"—65.52 Pounds
.051"—64.26 Pounds
.050"—63.00 Pounds
.049"—61.74 Pounds
.048"—60.48 Pounds
.047"—59.22 Pounds

Theoretical Wt.  
63.00 Pounds

Weight of the same size sheet of .0475 plus or minus 3% is 59.85 pounds with an average saving of 3.15 pounds per sheet.

Multiply this saving by the number of sheets you use per month and the price per pound and you have a good dollar and cents reason for buying MicroRold.

\* Each additional 1/1000" of thickness adds 1.26 pounds weight per sheet.



**WASHINGTON STEEL CORPORATION**  
WASHINGTON, PENNSYLVANIA



STEEL is pouring from the mills in steadily rising volume again. But it will take at least three weeks before pre-strike production schedules are regained. Speed of recovery depends on extent of needed repairs to facilities. Fortunately, no unusual damage is indicated as result of the 55-day suspension.

**OPERATIONS**—The national ingot rate jumped 31.5 points last week to 47 per cent of capacity. It would have risen still more sharply except some producers were delayed in resuming by local disputes over seniority rights, incentive rates and other details in separate union agreements.

**REPERCUSSIONS**—Impact of the strike in terms of its effect on the nation's economy will not be possible to assess for weeks to come. The work stoppage was the most damaging in the industry's history. And the split decision which brought the workers back to their jobs is seen as setting off another spiral of inflation as the steel wage and price increases fan out to encompass related metalworking lines, eventually spreading to all industry.

**COSTLY DISPUTE**—Up to the end of last week over 17,500,000 net tons of steel were lost as result of the labor discord since last April. Additional millions of tons will be lost before the mills regain full production stride. Loss in sales and wages in the June-July shutdown alone exceeds \$4 billion, including time and production lost in related metalworking lines for lack of steel, and by the railroads. This figure will be pyramided as supply shortages restrict metalworking operations in many directions in the months ahead.

**SHORTAGE THREATENS**—While producers are getting back into full operation as quickly as possible, steel will not flow from the mills fast enough to prevent further curtailments and shutdowns of metalworking shops. Supply pipelines are exhausted and will be months refilling. Intermittent shutdowns and curtailments are anticipated over the next four or five months for lack of balanced steel and components supplies, with civilian goods manufacturing

industry bearing the heavy brunt of the deficiency.

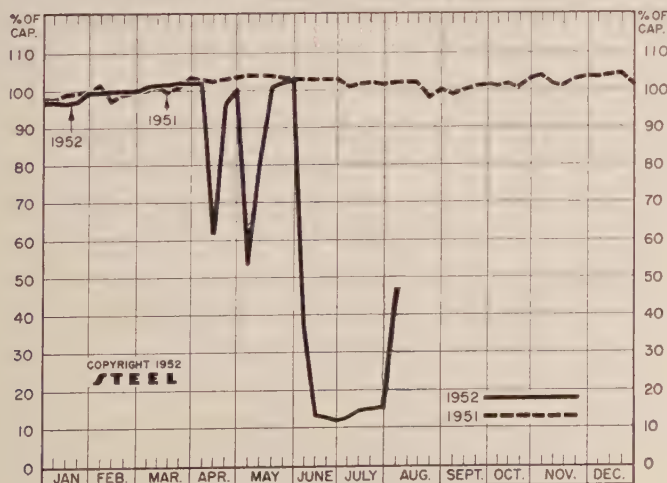
**DISTRIBUTION**—Effective distribution is sought through emergency changes in government allocation regulations. These give priority to military and defense needs, but also take civilian requirements into consideration. Special consideration is being given small consumers, indicated by new regulations affecting warehouse receipts and shipments.

**BOOKINGS**—Business on steelmakers' books will be handled in the order received as far as practicable. No attempt will be made to wash out the carryover of unfilled orders before first quarter next year. Fourth quarter advance allotments for civilian consumers will be allowed to stand. However, first quarter 1953 allotments may be cut back. Third quarter military allotments will have priority through Nov. 30 on the mills, but the fourth quarter military program will be fed through a series of mill set-asides, still to be determined.

**PRICES**—Pending issuance of new published prices on steel and related products STEEL's weighted index on finished steel is unchanged at 171.92 and the arithmetical composite at \$106.32. Pig iron also is unchanged but the steelmaking scrap composite has returned to ceiling at \$43, reflecting renewed strength in this market. Steelmakers are expected to announce new product price lists this week. The increases are retroactive to July 26.

**PRODUCT PRICES**—In general the new ceilings follow the industry formula. The overall average increase, about 4.7 per cent, comes out around \$5.20 on carbon steel items with proportionate increases on alloy and stainless. The \$5.20 hike is computed by adding the Capehart increase of \$2.84, the recent freight boost of 70 cents, and an allowance of \$1.66 to cover the wage hike. Separate product increases vary, depending on man-hour production costs for each. It is estimated sheets will rise \$3.50, plates \$4, structural shapes \$4, hot-rolled bars \$5, cold-rolled strip \$9, pressure tubing \$11, and carbon tool steels \$13.50.

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

Percentage of Capacity Engaged at  
Leading Production Points

	Week Ended Aug. 2†	Change	Same Week 1951	1950
Pittsburgh .....	39.5	+32.5*	95.5	100
Chicago .....	53	+47.5	103	101
Mid-Atlantic .....	43.5	+26.5	101	98
Youngstown .....	45	+39	105	108
Wheeling .....	47.5	— 2	97.5	100
Cleveland .....	40.5	+40.5	103	100
Buffalo .....	51	+51	104	104
Birmingham .....	15	+14.5	100	100
New England .....	53	+33	92	98
Cincinnati .....	45	+ 8	106	106
St. Louis .....	96.5	0	95	86.5
Detroit .....	72.5	+23.5	102	103
Western .....	36	+ 3*	101.5	103
Estimated national rate .....	47	+31.5	102	99.5

Based on weekly steelmaking capacity of 2,077,040 tons in 1952; 1,999,034 tons for 1951; 1,928,721 tons for second half, 1950; 1,906,268 tons for first half, 1950.

\* Change from revised rate for preceding week. † Preliminary.



## Composite Market Averages

	July 31 1952†	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
<b>FINISHED STEEL INDEX, Weighted:</b>					
Index (1935-39 av.=100) ..	171.92†	171.92†	171.92†	171.92	120.39
Index in cents per lb. ....	4.657†	4.657†	4.657†	4.657	3.261

## ARITHMETICAL PRICE COMPOSITES:

	July 31 1952†	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
Finished Steel, NT .....	\$106.32†	\$106.32†	\$106.32†	\$106.32	\$75.41
No. 2 Fdry, Pig Iron, GT ..	52.54	52.54	52.54	52.54	36.11
Basic Pig Iron, GT .....	52.16	52.16	52.16	52.16	35.61
Malleable Pig Iron, GT ..	53.27	53.27	53.27	53.27	36.79
Steelmaking Scrap, GT ..	43.00	42.67	42.33	44.00	40.42

Weighted finished steel index based on average shipments and Pittsburgh district prices of the following 14 representative products during 5-year base period 1935-39: Structural shapes, plates, rails, hot-rolled and cold-finished bars, pipe, wire, nails, tin plate, hot and cold-rolled sheets, galvanized sheets, hot and cold-rolled strip. For complete explanation see STEEL Sept. 19, 1949, p.64.

Arithmetical steel price composite based on same products as the weighted finished steel index with the exception of rails, cold-finished bars, galvanized sheets and hot-rolled strip.

Basic and No. 2 foundry pig iron composites are based on average prices at Pittsburgh, Bethlehem, Birmingham, Buffalo, Chicago, Cleveland, Granite City, Youngstown. Malleable composite based on same points except Birmingham.

Steelmaking scrap composite based on average prices of No. 1 heavy melting steel at Pittsburgh, Chicago and Philadelphia.

† Preliminary.

## Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

## FINISHED MATERIALS

	July 31 1952†	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
Bars, H.R., Pittsburgh ....	3.70	3.70	3.70	3.70	2.90
Bars, H.R., Chicago .....	3.70	3.70	3.70	3.70	2.90
Bars, H.R., del. Philadelphia	4.252	4.252	4.252	4.20	3.28
Bars, C.F., Pittsburgh ....	4.55	4.55	4.55	4.55	3.55
Shapes, Std., Pittsburgh ..	3.65	3.65	3.65	3.65	2.80
Shapes, Std., Chicago .....	3.65	3.65	3.65	3.65	2.80
Shapes, del. Philadelphia ..	3.93	3.93	3.93	3.91	2.94
Plates, Pittsburgh .....	3.70	3.70	3.70	3.70	2.95
Plates, Chicago .....	3.70	3.70	3.70	3.70	2.95
Plates, Coatesville, Pa. ....	4.15	4.15	4.15	4.15	3.15
Plates, Sparrows Point, Md.	3.70	3.70	3.70	3.70	2.95
Plates, Claymont, Del. ....	4.15	4.15	4.15	4.15	3.15
Sheets, H.R., Pittsburgh ..	3.60-75	3.60-75	3.60-75	3.60-75	2.80
Sheets, H.R., Chicago .....	3.60	3.60	3.60	3.60	2.80
Sheets, C.R., Pittsburgh ..	4.35	4.35	4.35	4.35	3.55
Sheets, C.R., Chicago .....	4.35	4.35	4.35	4.35	3.55
Sheets, C.R., Detroit .....	4.55	4.55	4.55	4.55	3.70
Sheets, Galv., Pittsburgh ..	4.80	4.80	4.80	4.80	3.90
Strip, H.R., Pittsburgh ....	3.75-4.00	3.75-4.00	3.75-4.00	3.75-4.00	2.80
Strip, H.R., Chicago .....	3.50	3.50	3.50	3.50	2.80
Strip, C.R., Pittsburgh ..	4.65-5.35	4.65-5.35	4.65-5.35	4.65-5.35	3.55
Strip, C.R., Chicago .....	4.90	4.90	4.90	4.90	3.65
Strip, C.R., Detroit .....	4.85-5.60	4.85-5.60	4.85-5.60	4.85-5.60	3.70
Wire, Basic, Pittsburgh ..	4.85-5.10	4.85-5.10	4.85-5.10	4.85-5.10	3.675
Nails, Wire, Pittsburgh ..	5.90-6.20	5.90-6.20	5.90-6.20	5.90-6.20	4.25
Tin plate box, Pittsburgh ..	\$8.70	\$8.70	\$8.70	\$8.70	\$5.75

## SEMIFINISHED

Billets, forging, Pitts.(NT)	\$66.00	\$66.00	\$66.00	\$66.00	\$56.50
Wire rods, 3/8"-3/4", Pitts. .	4.10-30	4.10-30	4.10-30	4.10-30	2.825

## PIG IRON, Gross Ton

Bessemer, Pitts. ....	\$53.00	\$53.00	\$53.00	\$53.00	\$37.00
Basic, Valley .....	52.00	52.00	52.00	52.00	36.00
Basic, del. Phila. ....	56.75	56.75	56.75	56.49	38.72
No. 2 Fdry, Pitts. ....	52.50	52.50	52.50	52.50	36.50
No. 2 Fdry, Chicago .....	52.50	52.50	52.50	52.50	36.00
No. 2 Fdry, Valley .....	52.50	52.50	52.50	52.50	36.50
No. 2 Fdry, del. Phila. ....	57.25	57.25	57.25	56.99	39.22
No. 2 Fdry, Birm. ....	48.88	48.88	48.88	48.88	33.38
No. 2 Fdry (Birm.) del. Cin.	56.43	56.43	56.43	55.33	38.25
Malleable, Valley .....	52.50	52.50	52.50	52.50	36.50
Malleable, Chicago .....	52.50	52.50	52.50	52.50	36.50
Charcoal, Lyles, Tenn. ....	66.00	66.00	66.00	66.00	44.00
Ferromanganese, Etna, Pa.	188.00	188.00	188.00	188.00	140.25*

F.o.b. cars, Pittsburgh. † Preliminary.

## SCRAP, Gross Ton (including broker's commission)

No. 1 Heavy Melt, Pitts. ....	\$44.00	\$44.00	\$44.00	\$45.00	\$42.50
No. 1 Heavy Melt, E. Pa. ....	42.50	41.50	40.50	43.50	40.50
No. 1 Heavy Melt, Chicago ..	42.50	42.50	42.50	43.50	42.25
No. 1 Heavy Melt, Valley ..	44.00	44.00	44.00	45.00	44.00
No. 1 Heavy Melt, Cleve. ....	43.00	43.00	43.00	44.00	42.50
No. 1 Heavy Melt, Buffalo. .	37.00*	37.00*	37.00*	44.00	42.50
Rails, Rerolling, Chicago ..	52.50	52.50	52.50	52.50	49.75
No. 1 Cast, Chicago .....	45.00	45.00	45.00	49.00†	43.50

\* Nominal. † F.o.b. shipping point.

## COKE, Net Ton

Beehive, Furn, Connsvl. ....	\$14.75	\$14.75	\$14.75	\$14.75	\$11.50-12.50
Beehive, Fdry, Connsvl. ....	17.00	17.00	17.00	17.50	14.00-15.00
Oven Fdry, Chicago .....	23.00	23.00	23.00	21.00	18.50

## NONFERROUS METALS

Copper, del. Conn. ....	24.50	24.50	24.50	24.50	21.50
Zinc, E. St. Louis .....	15.00	15.00	15.00	17.50	10.50
Lead, St. Louis .....	15.80	15.80	15.80	16.80	14.80-14.85
Tin, New York .....	121.50	121.50	121.50	106.00	80.00
Aluminum, del. ....	19.00	19.00	19.00	19.00	15.00
Antimony, Laredo, Tex. ....	39.00	39.00	39.00	42.00	33.00
Nickel, refinery, duty paid. .	66.50	66.50	66.50	66.50	35.00

## PIG IRON

F.o.b. furnace prices quoted under GCPR as reported to STEEL Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies published on second following page

## PIG IRON, Gross Ton

	Basic	No. 2 Foundry	Malle- able	Besse- mer
Bethlehem, Pa. B2 .....	\$54.00	\$54.50	\$55.00	\$55.50
New York, del. ....	58.28	58.78	58.78	58.78
Newark, del. ....	57.02	57.52	58.02	58.52
Philadelphia, del. ....	56.75	57.25	57.75	58.25
<b>Birmingham District</b>				
Alabama City, Ala. R2 .....	48.38	48.88	48.88	48.88
Birmingham R2 .....	48.38	48.88	48.88	48.88
Birmingham S9 .....	48.38	48.88	48.88	48.88
Woodward, Ala. W15 .....	48.38	48.88	48.88	48.88
Cincinnati, del. ....	56.43	56.43	56.43	56.43
<b>Buffalo District</b>				
Buffalo R2 .....	52.00	52.50	53.00	53.00
Buffalo H1 .....	52.00	52.50	53.00	53.00
Tonawanda, N.Y. W12 .....	52.00	52.50	53.00	53.00
No. Tonawanda, N.Y. T9 .....	52.00	52.50	53.00	53.00
Boston, del. ....	62.65	63.15	63.65	63.65
Rochester, N.Y., del. ....	55.02	55.52	56.02	56.02
Syracuse, N.Y., del. ....	56.12	56.62	57.12	57.12
<b>Chicago District</b>				
Chicago I-3 .....	52.00	52.50	52.50	53.00
Gary, Ind. U5 .....	52.00	52.00	52.50	52.50
Indiana Harbor, Ind. I-2 .....	52.00	52.00	52.50	52.50
So. Chicago, Ill. W14 .....	52.00	52.50	52.50	52.50
So. Chicago, Ill. Y1 .....	52.00	52.50	52.50	52.50
So. Chicago, Ill. U5 .....	52.00	52.00	52.50	53.00
Milwaukee, del. ....	54.17	54.67	54.67	55.17
Muskegon, Mich., del. ....	58.80	58.80	58.80	58.80
<b>Cleveland District</b>				
Cleveland A7 .....	52.00	52.50	52.50	53.00
Cleveland R2 .....	52.00	52.50	52.50	52.50
Akron, O., del. from Cleve. .	54.61	55.11	55.11	55.61
Lorain, O. N3 .....	52.00	52.00	52.00	53.00
Duluth I-3 .....	52.00	52.00	52.50	52.50
Erie, Pa. I-3 .....	52.00	52.50	52.50	53.00
Everett, Mass. E1 .....	59.75	59.75	60.25	60.25
Fontana, Calif. K1 .....	58.00	58.50	58.50	58.50
Seattle, Tacoma, Wash., del. .	60.66	60.66	60.66	60.66
Portland, Oreg., del. ....	60.66	60.66	60.66	60.66
Los Angeles, San Francisco, del. .	60.16	60.66	60.66	60.66
Granite City, Ill. G4 .....	53.90	54.40	54.90	54.90
St. Louis, del. (inc. tax) ..	54.65	55.15	55.65	55.65
Ironton, Utah C11 .....	52.00	52.50	52.50	52.50
Geneva, Utah C11 .....	52.00	52.50	52.50	52.50
Lone Star, Tex. L6 .....	48.00	*48.50	48.50	48.50
Minnequa, Colo. C10 .....	54.00	55.00	55.00	55.00
<b>Pittsburgh District</b>				
Neville Island, Pa. P6 .....	52.50	52.50	52.50	53.00
Pitts., N.S. & sides, Ambridge	53.87	53.87	53.87	54.37
Aliquippa, del. ....	53.54	53.54	53.54	54.04
McKees Rocks, del. ....	53.54	53.54	53.54	54.04
Lawrenceville, Homestead, .	54.16	54.16	54.16	54.66
Wilmerding, Monaca, del. ....	54.69	54.69	54.69	55.19
Verona, Trafford, del. ....	54.95	54.95	54.95	55.45
Brackenridge, del. ....	54.95	54.95	54.95	55.45
Bessemer, Pa. U5 .....	52.00	52.50	52.50	53.00
Clairemont, Rankin, So. Duquesne, Pa. U5	52.00	52.00	52.00	52.00
McKeesport, Pa. N3 .....	52.00	52.00	52.00	53.00
Monessen, Pa. P7 .....	54.00	54.00	54.00	54.00
Sharpsville, Pa. S6 .....	52.50	52.50	52.50	53.00
Steelton, Pa. B2 .....	54.00	54.50	55.00	55.50
Swedeland, Pa. A3 .....	56.00	56.50	57.00	57.50
Toledo, O. I-3 .....	52.00	52.50	52.50	53.00
Cincinnati, del. ....	57.47	57.97	57.97	58.47
Troy, N.Y. R2 .....	54.00	54.50	55.00	55.50
<b>Youngstown District</b>				
Hubbard, O. Y1 .....	52.00	52.50	52.50	53.00
Youngstown Y1 .....	52.00	52.50	52.50	53.00
Youngstown U5 .....	52.00	52.00	52.00	53.00
Mansfield, O., del. ....	56.65	57.15	57.15	57.65

\* Low phos, southern grade.

## PIG IRON DIFFERENTIAL

**Silicon:** Add 50 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos iron on which basis is 1.75-2.00%.

**Phosphorus:** Deduct 38 cents per ton for P content of 0.70% and over. **Manganese:** Add 50 cents per ton for each 0.50% manganese over 0.50% or portion thereof.

**Nickel:** Under 0.50% no extra; 0.50-0.74%, incl., add \$2 per ton and each additional 0.25%, add \$1 per ton.

## BLAST FURNACE SILVERLY PIG IRON, Gross Ton

(Base 6.0-6.50% silicon; add \$1.50 for each 0.5% Si)

Jackson, O. G2, J1 .....	\$62.00
Buffalo H1 .....	63.00

## ELECTRIC FURNACE SILVERLY PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 18%; \$1 each 0.5% Mn over 1%; \$1 for each 0.045% max. P)

Niagara Falls, N.Y. P15 .....	\$88.00
Keokuk, Iowa, Openhearth & Fdry, frt. allowed K2 .....	92.00
Keokuk, OH & Fdry., 12 1/2 lb piglets, 16% Si, frt. allowed K2	98.00
Wenatchee, Wash., OH & Fdry., frt. allowed K2 .....	92.00

## CHARCOAL PIG IRON, Gross Ton

(Low phos semi-cold blast; differential charged for silicon over base grade; also for hard chilling iron Nos. 5 & 6)

Lyles, Tenn. T3 .....	\$60.00
<b>LOW PHOSPHORUS PIG IRON, Gross Ton</b>	
Cleveland, intermediate, A7 .....	\$57.00
Steelton, Pa. B2 .....	60.00
Philadelphia delivered .....	63.00
Troy, N.Y. R2 .....	60.00



## Semifinished and Finished Steel Products

Mill prices quoted under GCPR in effect to July 26, 1952; cents per pound except as otherwise noted. Changes shown in italics. Code numbers following mill points indicate producing company; key on next two pages.

<b>INGOTS, Carbon, Forging (NT)</b>		<b>STRUCTURALS</b>		<b>PLATES, Carbon Steel</b>		<b>BAR S &amp; SMALL SHAPES, H.R.,</b>			
Fontana, Calif. K1	\$79.00	<b>Carbon Steel Stand. Shapes</b>		Alabama City, Ala. R2	3.70	High-Strength Low-Alloy	Cleveland R2	3.70	
Munhall, Pa. U5	52.00	Alabama City, Ala. R2	3.60	Alliquippa, Pa. J5	3.70	Alliquippa, Pa. J5	5.55	Emeryville, Calif. J7	4.45
Seattle S24	73.00	Alliquippa, Pa. J5	3.65	Ashland, Ky. (15) A10	3.70	Bessemer, Ala. T2	5.55	Fairfield, Ala. T2	3.70
<b>INGOTS, Alloy (NT)</b>		Bessemer, Ala. T2	3.65	Bessemer, Ala. T2	3.70	Bethlehem, Pa. B2	5.55	Fontana, Calif. K1	4.40
Detroit R7	\$54.00	Bethlehem, Pa. B2	3.70	Clairton, Pa. U5	3.70	Clairton, Pa. U5	5.55	Gary, Ind. U5	3.70
Fontana, Calif. K1	80.00	Clairton, Pa. U5	3.65	Claymont, Del. C22	4.15	Cleveland R2	5.55	Houston S5	4.10
Houston S5	62.00	Fairfield, Ala. T2	3.65	Cleveland J5, R2	3.70	Fairfield, Ala. T2	5.55	Ind. Harbor, Ind. I-2, Y1	3.70
Midland, Pa. C18	54.00	Fontana, Calif. K1	4.25	Coatesville, Pa. L7	4.15	Fontana, Calif. K1	6.60	Johnstown, Pa. B2	3.70
Munhall, Pa. U5	54.00	Gary, Ind. U5	3.65	Conshohocken, Pa. A3	4.15	Gary, Ind. U5	5.55	Kansas City, Mo. S5	4.30
Seattle S24	80.00	Geneva, Utah C11	3.65	Fairfield, Ala. T2	3.70	Ind. Harbor, Ind. I-2	5.55	Lackawanna, N.Y. B2	3.70
<b>BILLETS, BLOOMS &amp; SLABS</b>		Houston S5	1.05	Fontana, Calif. (30) K1	4.30	Indiana Harbor, Ind. Y1	6.05	Los Angeles B3	4.40
<b>Carbon, Re-rolling (NT)</b>		Ind. Harbor, Ind. I-2	3.65	Gary, Ind. U5	3.70	Johnstown, Pa. B2	5.55	Milton, Pa. B6	4.55
Bessemer, Pa. U5	\$56.00	Johnstown, Pa. B2	3.70	Granite City, Ill. G4	4.40	Lackawanna, N.Y. B2	5.55	Minnequa, Colo. C10	4.50
Clairton, Pa. U5	56.00	Kansas City, Mo. S5	4.25	Geneva, Utah C11	3.70	Los Angeles B3	6.25	Niles, Calif. P1	5.05
Ensley, Ala. T2	56.00	Lackawanna, N.Y. B2	3.70	Harrisburg, Pa. C5	6.30	Pittsburgh J5	5.55	Pittsburg, Calif. C11	4.40
Fairfield, Ala. T2	56.00	Los Angeles B3	4.25	Houston S5	4.10	Seattle B3	6.30	Pittsburgh J5	3.70
Fontana, Calif. K1	75.00	Minnequa, Colo. C10	4.10	<b>PRICE REVISIONS</b>		So. Duquesne, Pa. U5	5.55	Portland, Ore. O4	4.65
Gary, Ind. U5	56.00	Munhall, Pa. U5	3.65	Listed quotations are those in effect prior to OPS' permission to raise prices retroactively to July 26. New price schedules are being prepared. Increases average about 4.7 per cent.		So. San Francisco B3	6.30	Sand Springs, Okla. S5	4.60
Johnstown, Pa. B2	56.00	Niles, Calif. (22) P1	4.85			Struthers, O. Y1	6.05	Seattle B3, N14	4.45
Lackawanna, N.Y. B2	56.00	Phoenixville, Pa. P4	5.90			Youngstown U5	5.55	So. Chicago, Ill. R2	3.70
Munhall, Pa. U5	56.00	Portland, Ore. O4	4.50			<b>BAR S, Cold-Finished Carbon</b>		So. Duquesne, Pa. U5	3.70
So. Chicago, Ill. U5	56.00	Seattle B3	4.30			Ambridge, Pa. W18	4.55	So. San Francisco B3	4.45
So. Duquesne, Pa. U5	56.00	So. Chicago, Ill. U5, W14	3.65	<b>Ind. Harbor, Ind. I-2 Y1 3.70</b>		Beaver Falls, Pa. M12, R2	4.55	Sparrows Point, Md. B2	3.70
<b>Carbon, Forging (NT)</b>		So. San Francisco B3	4.20	<b>Johnstown, Pa. B2 3.70</b>		Buffalo B5	4.60	Struthers, O. Y1	3.70
Bessemer, Pa. U5	\$66.00	Torrance, Calif. C11	4.25	<b>Johnstown, Pa. B2 3.70</b>		Camden, N.J. P13	5.00	Torrance, Calif. C11	4.40
Buffalo R2	66.00	Weirton, W. Va. W6	3.90	<b>Johnstown, Pa. B2 3.70</b>		Carnegie, Pa. C12	4.55	Youngstown R2, U5	3.70
Canton, O. R2	66.00	<b>Alloy Stand. Shapes</b>		<b>Johnstown, Pa. B2 3.70</b>		Chicago W18	4.55	<b>BAR S, Reinforcing</b>	
Clairton, Pa. U5	66.00	Clairton, Pa. U5	4.35	<b>Johnstown, Pa. B2 3.70</b>		Cleveland A7, C20	4.55	(Fabricated; to Consumers)	
Cleveland R2	66.00	Fontana, Calif. K1	5.55	<b>Johnstown, Pa. B2 3.70</b>		Detroit P17	4.70	Huntington, W. Va. W7	5.50
Conshohocken, Pa. A3	73.00	Munhall, Pa. U5	4.35	<b>Johnstown, Pa. B2 3.70</b>		Donora, Pa. A7	4.55	Johnstown, 1/4" B2	4.75
Detroit R7	69.00	So. Chicago, Ill. U5	4.35	<b>Johnstown, Pa. B2 3.70</b>		Elyria, O. W8	4.55	Los Angeles B3	5.45
Ensley, Ala. T2	66.00	<b>H.S., L.A. Stand. Shapes</b>		<b>Johnstown, Pa. B2 3.70</b>		Franklin Park, Ill. N5	4.55	Marion, O. P11	5.00
Fairfield, Ala. T2	66.00	Alliquippa, Pa. J5	5.50	<b>Johnstown, Pa. B2 3.70</b>		Gary, Ind. R2	4.55	Seattle B3, N14	5.55
Fontana, Calif. K1	85.00	Bessemer, Ala. T2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Green Bay, Wis. F7	4.55	So. San Francisco B3	5.45
Gary, Ind. U5	66.00	Bethlehem, Pa. (14) B2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Hammond, Ind. I2, M13	4.55	Sparrows Pt. 1/4" B2	4.75
Geneva, Utah C11	66.00	Clairton, Pa. U5	5.50	<b>Johnstown, Pa. B2 3.70</b>		Hartford, Conn. R2	5.10	Williamsport, Pa. S19	5.10
Houston S5	74.00	Fairfield, Ala. T2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Harvey, Ill. B5	4.55	<b>SHEETS, Hot-Rolled Steel</b>	
Johnstown, Pa. B2	66.00	Fontana, Calif. K1	6.10	<b>Johnstown, Pa. B2 3.70</b>		Los Angeles R2	6.00	(18 gage and heavier)	
Lackawanna, N.Y. B2	66.00	Gary, Ind. U5	5.50	<b>Johnstown, Pa. B2 3.70</b>		Mansfield, Mass. B5	5.10	Alabama City, Ala. R2	3.60
Los Angeles B3	85.00	Geneva, Utah C11	5.50	<b>Johnstown, Pa. B2 3.70</b>		Massillon, O. R2, R8	4.55	Ashland, Ky. (8) A10	3.60
Munhall, Pa. U5	66.00	Ind. Harbor, Ind. I-2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Monaca, Pa. S17	4.55	Butler, Pa. A10	3.60
Seattle B3	85.00	Ind. Harbor, Ind. I-2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Newark, N.J. W18	5.00	Cleveland J5, R2	3.60
So. Chicago R2, U5, W14	66.00	Johnstown, Pa. B2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Plymouth, Mich. P5	4.80	Conshohocken, Pa. A3	4.40
So. Duquesne, Pa. U5	66.00	Lackawanna, N.Y. (14) B2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Pittsburgh J5	4.55	Detroit M1	4.40
So. San Francisco B3	85.00	Los Angeles B3	6.05	<b>Johnstown, Pa. B2 3.70</b>		Putnam, Conn. W18	5.10	Ecorse, Mich. (8) G5	3.80
<b>Alloy, Forging (NT)</b>		Munhall, Pa. U5	5.50	<b>Johnstown, Pa. B2 3.70</b>		Readville, Mass. C14	5.10	Fairfield, Ala. T2	3.60
Bethlehem, Pa. B2	\$70.00	Seattle B3	6.10	<b>Johnstown, Pa. B2 3.70</b>		St. Louis, Mo. M5	4.95	Fontana, Calif. K1	4.55
Buffalo R2	70.00	So. Chicago, Ill. U5	5.50	<b>Johnstown, Pa. B2 3.70</b>		So. Chicago, Ill. W14	4.55	Gary, Ind. U5	3.60
Canton, O. R2	70.00	So. San Francisco B3	6.00	<b>Johnstown, Pa. B2 3.70</b>		Spring City, Pa. (5) K3	5.00	Geneva, Utah C11	3.70
Canton, O. (29) T7	66.00	Struthers, O. Y1	6.00	<b>Johnstown, Pa. B2 3.70</b>		St. Louis, Mo. M5	4.95	Granite City, Ill. G4	4.30
Conshohocken, Pa. A3	77.00	<b>Wide Flange</b>		<b>Johnstown, Pa. B2 3.70</b>		Waukegan, Ill. A7	4.55	Ind. Harbor, Ind. I-2, Y1	3.60
Detroit R7	73.00	Bethlehem, Pa. B2	3.70	<b>Johnstown, Pa. B2 3.70</b>		Youngstown F3, Y1	4.55	Irvin, Pa. U5	3.60
Fontana, Calif. K1	89.00	Clairton, Pa. U5	3.65	<b>Johnstown, Pa. B2 3.70</b>		<b>BAR S, Cold-Finished Alloy</b>		Lackawanna, N.Y. B2	3.60
Gary, Ind. U5	70.00	Fontana, Calif. K1	4.65	<b>Johnstown, Pa. B2 3.70</b>		Ambridge, Pa. W18	5.40	Munhall, Pa. U5	3.60
Houston S5	78.00	Lackawanna, N.Y. B2	3.70	<b>Johnstown, Pa. B2 3.70</b>		Beaver Falls, Pa. M12	5.40	Niles, O. N12	5.25
Ind. Harbor, Ind. Y1	70.00	Munhall, Pa. U5	3.65	<b>Johnstown, Pa. B2 3.70</b>		Bethlehem, Pa. B2	5.40	Pittsburg, Calif. C11	4.30
Johnstown, Pa. B2	70.00	So. Chicago, Ill. U5	3.65	<b>Johnstown, Pa. B2 3.70</b>		Buffalo B5	5.40	Pittsburgh J5	3.60
Lackawanna, N.Y. B2	70.00	<b>H.S., L.A. Wide Flange</b>		<b>Johnstown, Pa. B2 3.70</b>		Camden, N.J. P13	5.80	Sharon, Pa. S3	4.00
Los Angeles B3	90.00	Alliquippa, Pa. J5	5.50	<b>Johnstown, Pa. B2 3.70</b>		Canton, O. R2	5.40	So. Chicago, Ill. W14	3.60
Massillon, O. R2	70.00	Lackawanna, N.Y. B2	5.50	<b>Johnstown, Pa. B2 3.70</b>		Canton, O. (29) T7	4.90	Sparrows Point, Md. B2	3.60
Midland, Pa. C18	70.00	Munhall, Pa. U5	5.45	<b>Johnstown, Pa. B2 3.70</b>		Carnegie, Pa. C12	5.40	Steubenville, O. W10	3.60
Munhall, Pa. U5	70.00	So. Chicago, Ill. U5	5.45	<b>Johnstown, Pa. B2 3.70</b>		Chicago W18	5.40	Torrance, Calif. C11	4.30
So. Chicago R2, U5, W14	70.00	<b>BEARING PILES</b>		<b>Johnstown, Pa. B2 3.70</b>		Cleveland A7	5.45	Warren, O. R2	3.60
So. Duquesne, Pa. U5	70.00	Munhall, Pa. U5	3.65	<b>Johnstown, Pa. B2 3.70</b>		Cleveland C20	5.40	Weirton, W. Va. W6	3.60
Struthers, O. Y1	70.00	So. Chicago, Ill. U5	3.65	<b>Johnstown, Pa. B2 3.70</b>		Detroit P17	5.55	West Leeburg, Pa. A4	3.75
Warren, O. C17	70.00	<b>PLATES, High-Strength Low-Alloy</b>		<b>Johnstown, Pa. B2 3.70</b>		Donora, Pa. A7	5.45	Youngstown U5, Y1	3.60
<b>ROUNDS, SEAMLESS TUBE (NT)</b>		Alliquippa, Pa. J5	5.65	<b>Johnstown, Pa. B2 3.70</b>		Elyria, O. W8	5.40	<b>SHEETS, H.R. (19 gage)</b>	
Canton, O. R2	\$82.00	Bessemer, Ala. T2	5.65	<b>Johnstown, Pa. B2 3.70</b>		Gary, Ind. R2	5.40	<b>High-Strength Low-Alloy</b>	
Cleveland R2	82.00	Clairton, Pa. U5	5.65	<b>Johnstown, Pa. B2 3.70</b>		Hammond, Ind. I2, M13	5.40	Cleveland J5, R2	5.40
Fontana, Calif. K1	103.00	Clairton, Pa. U5	5.65	<b>Johnstown, Pa. B2 3.70</b>		Hartford, Conn. R2	5.85	Conshohocken, Pa. A3	5.65
Gary, Ind. U5	82.00	Cleveland J5, R2	5.65	<b>Johnstown, Pa. B2 3.70</b>		Harvey, Ill. B5	5.40	Ecorse, Mich. G5	5.95
Massillon, O. R2	82.00	Conshohocken, Pa. A3	5.90	<b>Johnstown, Pa. B2 3.70</b>		Lackawanna, N.Y. B2	5.40	Fairfield, Ala. T2	5.40
So. Chicago, Ill. R2	82.00	Fairfield, Ala. T2	5.65	<b>Johnstown, Pa. B2 3.70</b>		Mansfield, Mass. B5	5.55	Fontana, Calif. K1	6.35
So. Duquesne, Pa. U5	82.00	Fontana, Calif. (30) K1	6.25	<b>Johnstown, Pa. B2 3.70</b>		Massillon, O. R2, R8	5.40	Gary, Ind. U5	5.40
<b>SHEET BARS (NT)</b>		Gary, Ind. U5	5.65	<b>Johnstown, Pa. B2 3.70</b>		Midland, Pa. C18	5.40	Ind. Harbor, Ind. I-2	5.40
Fontana, Calif. K1	\$89.00	Geneva, Utah C11	5.65	<b>Johnstown, Pa. B2 3.70</b>		Monaca, Pa. S17	5.40	Johnstown, Ind. Y1	5.90
<b>SKELP</b>		Ind. Harbor, Ind. I-2	5.65	<b>Johnstown, Pa. B2 3.70</b>		Newark, N.J. W18	5.75	Irvin, Pa. U5	5.40
Alliquippa, Pa. J5	\$3.15	Ind. Harbor, Ind. I-2	5.65	<b>Johnstown, Pa. B2 3.70</b>		Plymouth, Mich. P5	5.60	Lackawanna (35) B2	5.40
Munhall, Pa. U5	3.35	Johnstown, Pa. B2	5.65	<b>Johnstown, Pa. B2 3.70</b>		So. Chicago, Ill. R2, W14	5.40	Pittsburgh J5	5.40
Warren, O. R2	3.35	Munhall, Pa. U5	5.65	<b>Johnstown, Pa. B2 3.70</b>		Struthers, O. Y1	5.40	Sharon, Pa. S3	5.40
Youngstown R2, U5	3.35	Pittsburgh J5	5.65	<b>Johnstown, Pa. B2 3.70</b>		Torrance, Calif. C11	4.40	So. Chicago, Ill. U5	5.40
<b>WIRE RODS</b>		Seattle B3	6.55	<b>Johnstown, Pa. B2 3.70</b>		Weirton, W. Va. W6	3.85	Sparrows Point (36) B2	5.40
Alton, Ill. L1	4.40	Sharon, Pa. S3	5.70	<b>Johnstown, Pa. B2 3.70</b>		Waukegan, Ill. A7	5.45	Warren, O. R2	5.40
Alabama City, Ala. R2	4.10	So. Chicago, Ill. U5	5.65	<b>Johnstown, Pa. B2 3.70</b>		Worcester, Mass. A7	5.75	Weirton, W. Va. W6	5.75
Buffalo W12	4.10	Sparrows Point, Md. B2	5.65	<b>Johnstown, Pa. B2 3.70</b>		Youngstown F3, Y1	5.40	Youngstown U5	5.40
Cleveland A7	4.10	Youngstown Y1	6.15	<b>Johnstown, Pa. B2 3.70</b>		<b>RAIL STEEL BARS</b>		Ind. Harbor, Ind. Y1	5.90
Donora, Pa. A7	4.10	<b>PLATES, Open-Heard Alloy</b>		<b>Johnstown, Pa. B2 3.70</b>		Chicago Hts. (3,4) C2	4.75	Lackawanna (35) B2	5.40
Fairfield, Ala. T2	4.10	Claymont, Del. C22	4.85	<b>Johnstown, Pa. B2 3.70</b>		Chicago Hts. (3,4) I-2	4.75	Pittsburgh J5	5.40
Fontana, Calif. K1	4.90	Coatesville, Pa. L7	5.25	<b>Johnstown, Pa. B2 3.70</b>		Franklin, Pa. (3,4) F5	4.75	Sharon, Pa. S3	5.40
Houston S5	4.50	Conshohocken, Pa. A3	5.05	<b>Johnstown, Pa. B2 3.70</b>		Fort Worth, Tex. (26) T4	4.85	So. Chicago, Ill. U5	5.40
Johnstown, Pa. B2	4.10	Fontana, Calif. K1	5.70	<b>Johnstown, Pa. B2 3.70</b>		Huntingt. W. Va. (3) W7	5.80	Sparrows Point (36) B2	5.40
Joliet, Ill. A7	4.10	Gary, Ind. U5	4.75	<b>Johnstown, Pa. B2 3.70</b>		Marion, O. (3) P11	4.75	Warren, O. R2	5.40
Los Angeles B3	1.90	Johnstown, Pa. B2	4.75	<b>Johnstown, Pa. B2 3.70</b>		Moline, Ill. (3) R2	3.80	Weirton, W. Va. W6	5.75
Minnequa, Colo. C10	4.35	Munhall, Pa. U5	4.75	<b>Johnstown, Pa. B2 3.70</b>		Tonawanda (3,4) B12	4.75	Youngstown U5	5.40
Monessen, Pa. P7	4.30	Sharon, Pa. S3	5.20	<b>Johnstown, Pa. B2 3.70</b>		Williamsport (3) S19	5.00	Youngstown Y1	5.90
No. Tonawanda, N.Y. B11	4.10	So. Chicago, Ill. U5	4.75	<b>Johnstown, Pa. B2 3.70</b>		Williamsport (4) S19	5.10	<b>SHEETS, Cold-Rolled</b>	
Pittsburg, Calif. C11	4.30	<b>FLOOR PLATES</b>		<b>Johnstown, Pa. B2 3.70</b>		<b>BAR S, Wrought Iron</b>		<b>High-Strength Low-Alloy</b>	
Portsmouth, O. P12	4.20	Cleveland J5	4.75	<b>Johnstown, Pa. B2 3.70</b>		Dover, N.J. (Staybolt) U1	15.00	Cleveland J5, R2	6.65
Roebling, N.J. R5	4.20	Conshohocken, Pa. A3	4.75	<b>Johnstown, Pa. B2 3.70</b>		Dover (Eng. Bolt) U1	13.50	Ecorse, Mich. G5	7.10
So. Chicago, Ill. R2	4.10	Ind. Harbor, Ind. I-2	4.75	<b>Johnstown, Pa. B2 3.70</b>		Dover (Wright Iron) U1	12.25	Fontana, Calif. K1	7.50
Sparrows Point, Md. B2	4.20	Munhall, Pa. U5	4.75	<b>Johnstown, Pa. B2 3.70</b>		Economy, Pa. (S.R.) B14	9.60	Gary, Ind. U5	6.85



**SHEETS, Cold-Rolled Steel**

(Commercial Quality)	
Butler, Pa. A10	4.35
Cleveland J5, R2	4.35
Ecorse, Mich. G5	4.55
Fairfield, Ala. T2	4.35
Fallssee, W. Va. F4	5.35
Fontana, Calif. K1	5.30
Gary, Ind. U5	4.35
GraniteCity, Ill. G4	5.05
Ind. Harbor, Ind. I-2, Y1	4.35
Irvin, Pa. U5	4.35
Lackawanna, N.Y. B2	4.35
Middletown, O. A10	4.35
Pittsburgh, Calif. C11	5.30
Pittsburgh J5	4.35
SparrowsPoint, Md. B2	4.35
Steubenville, O. W10	4.35
Warren, O. R2	4.35
Weirton, W. Va. W6	4.35
Youngstown Y1	4.35

**SHEETS, Galv'd No. 10 Steel**

Alabama City, Ala. R2	4.80
Ashland, Ky. (8) A10	4.80
Canton, O. R2	4.80
Dover, O. R1	5.50
Fairfield, Ala. T2	4.80
Gary, Ind. U5	4.80
GraniteCity, Ill. G4	5.50
Ind. Harbor, Ind. I-2	4.80
Irvin, Pa. U5	4.80
Kokomo, Ind. (13) C16	5.20
Martins Ferry, O. W10	4.80
Niles, O. N12	6.00
Pittsburgh, Calif. C11	5.55
SparrowsPoint, Md. B2	4.80
Steubenville, O. W10	4.80
Torrance, Calif. C11	5.55
Weirton, W. Va. W6	4.80

**SHEETS, Galvanized No. 10, High-Strength Low-Alloy**

Irvin, Pa. U5	7.20
SparrowsPoint (39) B2	6.75

**SHEETS, Galvannealed Steel**

Canton, O. R2	5.35
Irvin, Pa. U5	5.35
Kokomo, Ind. (13) C16	5.75
Niles, O. N12	6.55

**SHEETS, ZINCGRIP Steel No. 10**

Butler, Pa. A10	5.05
Middletown, O. A10	5.05

**SHEETS, Electro Galvanized**

Cleveland R2 (28)	5.65
Niles, O. R2 (28)	5.65
Weirton, W. Va. W6	5.50

**SHEETS, Zinc Alloy**

Ind. Harbor, Ind. I-2	5.70
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**SHEETS, Drum Body**

Pittsburgh, Calif. C11	4.30
Torrance, Calif. C11	4.30

**SHEETS, Well Casing**

Fontana, Calif. K1	5.10
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**BLUED Stock, 29 ga.**

Yorkville, O. W10	6.80
Fallssee, W. Va. (23) F4	6.85

**TIN PLATE, Electrolytic (Base Box)**

	0.25 lb	0.50 lb	0.75 lb
Aliquippa, Pa. J5	\$7.15	\$7.40	\$7.80
Fairfield, Ala. T2	7.25	7.50	7.90
Gary, Ind. U5	7.15	7.40	7.80
GraniteCity, Ill. G4	7.35	7.60	8.00
Indiana Harbor, Ind. I-2, Y-1	7.15	7.40	7.80
Irvin, Pa. U5	7.15	7.40	7.80
Niles, O. R2	7.15	7.40	7.80
Pittsburgh, Calif. C11	7.90	8.15	8.55
SparrowsPoint, Md. B2	7.25	7.50	7.90
Weirton, W. Va. W6	7.15	7.40	7.80
Zanesville, O. A10	7.25	7.75	9.00

**SHEETS, SILICON, H.R. or C.R. (22 Ga.)**

Coils (Cut lengths 1/2 cut lower)	Field	Armature	Electric Motor	Dynamo
BeechBottom W10 (cut lengths)	7.25	7.25	8.50	9.30
Brackenridge, Pa. A4	7.75	7.90	9.00	9.80
GraniteCity, Ill. G4 (cut lengths)	7.75	7.95	9.20	...
Indiana Harbor, Ind. I-2	6.95	7.25	(34)	...
Mansfield, O. B6 (cut lengths)	7.10	7.25	7.75	9.00
Niles, O. N12 (cut lengths)	7.10	7.25	7.75	9.00
Vandergrift, Pa. U5	7.25	7.75	9.00	9.80
Warren, O. R2	6.95	7.25	7.75	9.00
Zanesville, O. A10	7.25	7.75	9.00	9.80

**SHEETS, SILICON (22 Ga. Base)**

Coils (Cut Lengths 1/2 cut lower)	72	65	58	52
Transformer Grade				
BeechBottom W10 (cut lengths)	9.85	10.40	11.10	11.90
Brackenridge, Pa. A4	10.35	10.90	11.60	12.40
Vandergrift, Pa. U5	10.35	10.90	11.60	12.40
Warren, O. R2	10.35	10.90	11.60	12.40
Zanesville, O. A10	10.35	10.90	11.60	12.40

**H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22 Ga.)**

	T-100	T-90	T-80	T-73
Butler, Pa. A10 (C.R.)	12.90	13.75	14.75	15.25
Vandergrift, Pa. U5	12.90	13.75	14.75	15.25

**SHEETS, Enameling Iron**

Ashland, Ky. (8) A10	4.65
Cleveland R2	4.65
Gary, Ind. U5	4.65
GraniteCity, Ill. G4	5.35
Ind. Harbor, Ind. I-2	4.65
Irvin, Pa. U5	4.65
Middletown, O. A10	4.65
Youngstown Y1	4.65

**BLACK PLATE**

(Base Box)	
Aliquippa, Pa. J5	\$6.25
Fairfield, Ala. T2	6.35
Gary, Ind. U5	6.25
GraniteCity, Ill. G4	6.45
Ind. Harbor, Ind. I-2, Y1	6.25
Irvin, Pa. U5	6.25
Niles, O. R2	6.25
Pittsburgh, Calif. C11	7.00
SparrowsPoint, Md. B2	6.35
Warren, O. R2	6.25
Weirton, W. Va. W6	6.25
Yorkville, O. W10	6.25

**HOLLOWWARE ENAMELING**

Black Plate (29 gage)	
Fallssee, W. Va. F4	5.85
Gary, Ind. U5	5.85
GraniteCity, Ill. G4	6.05
Ind. Harbor, Ind. Y1	5.85
Irvin, Pa. U5	5.85
Yorkville, O. W10	6.15

**SHEETS, Culvert**

No. 16	Cu Alloy	Cu Fe
Ashland, Ky. A10	5.60	6.10
Canton, O. R2	5.65	6.10
Fairfield, Ala. T2	5.60	5.85
Gary, Ind. U5	5.60	5.85
Indiana Harbor I-2	5.60	5.85
Irvin, Pa. U5	5.60	5.85
Kokomo, Ind. C16	6.25	...
Martins Ferry, O. W10	5.60	5.85
Pittsburgh, Calif. C11	6.35	...
SparrowsPt. B2	5.60	...
Torrance, Calif. C11	6.35	...

**SHEETS, Culvert, No. 16**

Ashland, Ky. A10	5.85
Fairfield, Ala. T2	5.85

**SHEETS, Hot-Rolled Ingot Iron**

18 Gage and Heavier	
Ashland, Ky. (8) A10	3.85
Cleveland R2	4.20
Ind. Harbor, Ind. I-2	3.85
Warren, O. R2	4.20

**SHEETS, Cold-Rolled Ingot Iron**

Cleveland R2	4.95
Middletown, O. A10	4.85
Warren, O. R2	4.95

**SHEETS, Galvanized Ingot Iron**

No. 10 flat	
Ashland, Ky. (8) A10	5.05
Canton, O. R2	5.55

**SHEETS, ZINCGRIP Ingot Iron**

Butler, Pa. A10	5.30
Middletown, O. A10	5.30

**SHEETS, ALUMINIZED**

Butler, Pa. A10	8.15
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**TINPLATE, American 1.25 1.50**

Coke (Base Box)	
Aliquippa, Pa. J5	\$8.45
Fairfield, Ala. T2	8.55
Gary, Ind. U5	8.45
Ind. Har. I-2, Y1	8.45
Irvin, Pa. U5	8.45
Pitts., Cal. C11	9.20
Sp. Pt., Md. B2	8.55
Warren, O. R2	8.45
Weirton, W. Va. W6	8.45
Yorkville, O. W10	8.45

**MANUFACTURING TERNES**

(Special Coated)	
Fairfield, Ala. T2	\$7.60
Gary, Ind. U5	7.50
Irvin, Pa. U5	7.50
SparrowsPoint, Md. B2	7.60
Yorkville, O. W10	7.50

**SHEETS, LT. Coated Ternes, 6 lb**

Yorkville, O. W10	\$8.40
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**SHEET, Mfg. Ternes, 8 lb**

(Commercial Quality)	
Gary, Ind. U5	\$9.50
Yorkville, O. W10	9.50

**SHEET, Long Ternes Steel**

(Commercial Quality)	
BeechBottom, W. Va. W10	5.20
Gary, Ind. U5	5.20
Mansfield, O. E6	6.05
Middletown, O. A10	5.20
Niles, O. N12	6.00
Weirton, W. Va. W6	5.20

**SHEETS, Long Ternes, Ingot Iron**

Middletown, O. A10	5.00
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**ROOFING SHORT TERNES**

(8 lb Coated)	
Gary, Ind. U5	9.50

**STRIP, Hot-Rolled**

High-Strength Low-Alloy	
Bessemer, Ala. T2	5.30
Conshohocken, Pa. A3	5.55
Ecorse, Mich. G5	5.95
Fairfield, Ala. T2	5.30
Fontana, Calif. K1	6.20
Gary, Ind. U5	5.30
Ind. Harb., Ind. I-2	5.30
Ind. Harbor, Ind. I-2, Y1	3.50
Lackawanna, N.Y. B2	4.95
Los Angeles (25) B3	6.05
Seattle B3	6.30
Sharon, Pa. S3	5.40
So. San Francisco (25) B3	6.05
SparrowsPoint, Md. B2	4.95
Warren, O. R2	5.30
Weirton, W. Va. W6	5.75
Youngstown Y1	5.80
Youngstown U5	5.30

**STRIP, Cold-Rolled**

High-Strength Low-Alloy	
Cleveland J5	6.70
Cleveland A7	6.55
Dover, O. G6	7.30
Fontana, Calif. K1	6.95
Lackawanna, N.Y. B2	6.40
Sharon, Pa. S3	6.55
SparrowsPoint, Md. B2	6.40
Warren, O. R2	6.55
Weirton, W. Va. W6	7.20
Youngstown Y1	7.05

**Key to Producers**

A1 Acme Steel Co.	C10 Colorado Fuel & Iron	G2 Globe Iron Co.
A3 Alan Wood Steel Co.	C11 Columbia-Geneva Steel	G3 Globe Steel Tubes Co.
A4 Allegheny Ludlum Steel	C12 Columbia Steel & Shaft	G4 Granite City Steel Co.
A7 American Steel & Wire	C13 Columbia Tool Steel Co.	G5 Great Lakes Steel Corp.
A8 Anchor Drawn Steel Co.	C14 Compressed Steel Shaft	G6 Greer Steel Co.
A9 Angell Nail & Chaplet	C16 Continental Steel Corp.	H1 Hanna Furnace Corp.
A10 Armo Steel Corp.	C17 Copperweld Steel Corp.	I-1 Igoe Bros. Inc.
A11 Atlantic Steel Co.	C18 Crucible Steel Co.	I-2 Inland Steel Co.
A13 American Cladmetals Co.	C19 Cumberland Steel Co.	I-3 Interlake Iron Corp.
B1 Babcock & Wilcox Co.	C20 Cuyahoga Steel & Wire	I-4 Ingersoll Steel Div.
B2 Bethlehem Steel Co.	C22 Claymont Steel Corp.	Borg-Warner Corp.
B3 Beth. Pac. Coast Steel	D2 Detroit Steel Corp.	I-7 Indiana Steel & Wire
B4 Blair Strip Steel Co.	D3 Detroit Tube & Steel	J1 Jackson Iron & Steel
B5 Bliss & Laughlin Inc.	D4 Diston & Sons, Henry	J3 Jessop Steel Co.
B6 Boiardi Alloy Corp.	D6 Driver Harris Co.	J4 Johnson Steel & Wire
B8 Braeburn Alloy Steel	D7 Dickson Weatherproof Nail Co.	J5 Jones & Laughlin Steel
B11 Buffalo Bolt Co.	E1 Eastern Gas & Fuel Assoc.	J6 Joslyn Mfg. & Supply
B12 Buffalo Steel Co.	E2 Eastern Stainless Steel	J7 Judson Steel Corp.
B14 A. M. Byers Co.	E3 Electro Metallurgical Co.	J8 Jersey Shore Steel Co.
C1 Calstrip Steel Corp.	E4 Elliott Bros. Steel Co.	K1 Kaiser Steel Corp.
C2 Calumet Steel Div.	E6 Empire Steel Corp.	K2 Keokuk Electro Meta
C3 Borg-Warner Corp.	F2 Fifth Sterling Inc.	K3 Keystone Drawn Steel
C4 Carpenter Steel Co.	F3 Fitzsimons Steel Co.	K4 Keystone Steel & Wire
C5 Central Iron & Steel Div.	F4 Fallssee Steel Corp.	L1 Laclede Steel Co.
C7 Barm Steel Corp.	F5 Franklin Steel Div.	L2 LaSalle Steel Co.
C8 Cleve. Cold Rolling Mills	F6 Fretz-Moon Tube Co.	L3 Latrobe Steel Co.
C9 Colonial Steel Co.	F7 Ft. Howard Steel & Wire	L5 Lockhart Iron & Steel
		L6 Lone Star Steel Co.
		L7 Lukens Steel Co.

**Midland, Pa. C18**

NewBritn, Conn. (10) S15	5.40
Sharon, Pa. S3	5.80
Youngstown U5	5.20

**STRIP, Cold-Rolled Carbon**

Anderson, Ind. (40) G6	5.50
Berea, O. C7	5.60
Bridgeport, Conn. (10) S15	5.40
Butler, Pa. A10	4.40
Cleveland A7, J5	4.40
Dearborn, Mich. D3	5.40
Detroit D2	5.40
Detroit M1	5.40
Dover, O. (40) G6	5.40
Ecorse, Mich. G5	4.40
Fallssee, W. Va. F4	4.40
Fontana, Calif. K1	4.40
Franklin Park, Ill. (40) T6	4.40
Ind. Harbor, Ind. I-2	4.40
Lackawanna, N.Y. B2	4.40
Los Angeles C1	4.40
Mattapan, Mass. T6	5.40
Middletown, O. A10	4.40
New Britain (10) S15	5.40
New Castle, Pa. B4	5.40
New Castle, Pa. (40) E5	5.40
New Haven, Conn. D2	5.40
New Haven, Conn. A7	5.40
Pawtucket, R.I. R3	5.40
Pawtucket, R.I. (21) N8	5.40
Riverdale, Ill. (40) A1	4.40
Rome, N.Y. R6	5.40
Sharon, Pa. S3	5.40
SparrowsPoint, Md. B2	4.40
Trenton, N.J. R5	5.40
Wallingford, Conn. W2	5.40
Warren, O. (40) T5	5.40
Warren, O. R2	4.40
Weirton, W. Va. W6	4.40
Youngstown C8 (40)	5.40
Youngstown Y1	4.40

**STRIP, Electro Galvanized**

Dover, O. G6	5.40
Warren, O. T5	5.40
Weirton, W. Va. W6	4.40
Youngstown C8	5.20

**STRIP, Cold-Finished,**

Spring Steel (Annealed)	0.40C	0.60C	0.80C	1.05C	1.30C
Berea, O. C7 .....	...	6.80	7.40	9.35	11.30
Bridgeport, Conn. (10) S15	5.35-	6.80	7.40	9.35	11.30
Bristol, Conn. W1 .....	...	...	7.70	9.65	...
Carnegie, Pa. S18 .....	...	6.80	7.40	9.35	11.30
Cleveland A7 .....	4.65	6.45	7.40	9.35	11.30
Dearborn, Mich. D3 .....	5.60	7.05	7.65	...	...
Detroit D2 .....	5.60	6.65	7.25	...	...
Dover, O. G6 .....	5.50	6.80	7.40	9.35	11.30
Franklin Park, Ill. T6 .....	5.00	6.60	7.55	9.50	11.30
Harrison, N. J. C18 .....	...	...	7.70	9.65	11.30
Mattapan, Mass. T6 .....	5.50	6.75	7.70	9.65	11.30
New Britn., Conn. (10) S15	5.35	6.80	7.40	9.35	11.30
New Castle, Pa. E4 .....	5.35	6.80	7.40	9.35	...
New Castle, Pa. E5 .....	5.50	6.80	7.40	9.35	11.30
New Haven, Conn., D2 .....	5.85	6.75	7.35	...	...
New York W3 .....	...	7.10	7.70	9.65	11.30
Pawtucket, R.I. N8:					
Cleve. or Pitts. Base ...	...	6.80	7.40	9.35	11.30
Worcester, Mass., Base	5.85	7.10	7.70	9.65	11.30
Sharon, Pa. S3 .....	5.35	6.80	7.40	9.35	11.30
Trenton, N.J. R5 .....	...	7.10	7.70	9.65	11.30
Wallingford, Conn. W2	5.85	6.75	7.35	9.30	11.30
Weirton, W. Va. W6 .....	5.35	6.80	7.40	9.35	11.30
Worcester, Mass. A7 .....	4.95	6.75	7.70	9.65	11.30
Worcester, Mass. T6 .....	5.50	6.75	7.70	9.65	11.30
Youngstown C8 .....	...	6.80	7.40	9.35	11.30



<b>STRIP, Cold-Rolled Alloy Steel</b>	
Bridgeprt, Conn. (10) S15	10.75
Carnegie, Pa. S18	10.60
Cleveland A7	10.00
Dover, O. G6	10.50
Fontana, Calif. K1	11.65
Harrison, N.J. C18	10.60
Midland, Pa. C18	10.60
NewBritn. Conn. (10) S15	10.75
Pawtucket, R.I. (11) N8	10.75
Pawtucket, R.I. (12) N8	11.05
Sharon, Pa. S3	10.60
Worcester, Mass. A7	10.30
Youngstown CS	10.60

<b>STRIP, Hot-Rolled Ingot Iron</b>	
Ashland, Ky. (8) A10	3.75
Warren, O. R2	4.10

<b>STRIP, Cold-Rolled Ingot Iron</b>	
Warren, O. R2	5.25

<b>TIGHT COOPERAGE HOOP</b>	
Atlanta A11	4.05
Riverdale, Ill. A1	3.90
Sharon, Pa. S3	4.15
Youngstown U5	3.75

<b>WIRE, Tire Bead</b>	
Bartonville, Ill. (1) K4	10.90
Monessen, Pa. P16	11.40
Roebing, N.J. R5	11.55

<b>WIRE, Merchant Quality (6 to 8 gage)</b>	
Alabama City R2	5.70 5.95
Alliquippa J5	5.70 6.15
Atlanta A11	5.95 6.40
Bartonville (19) K4	5.70 6.15
Buffalo W12	4.85
Cleveland A7	5.70 6.15
Crawfordsville M8	5.95 6.40
Donora, Pa. A7	5.70 6.15
Duluth, Minn. A7	5.70 6.15
Fairfield T2	5.70 6.15
Houston, Tex. S5	6.10 6.55
Johnstown B2	5.70 6.15
Joliet, Ill. A7	5.70 6.15
Kansas City Mo. S5	6.30 6.75
Kokomo C16	5.80 6.05
Los Angeles B3	6.65
Minnequa C10	5.95 6.45
Monessen P7	5.95 6.40
Palmer W12	5.15
Pitts., Calif. C11	6.65 6.80
Prtsmth. (18) P12	6.10 6.60
Rankin A7	5.70 6.15
So. Chicago R2	5.70 5.95
So. S. Fran. C10	6.65 7.10
Sparrows Pt. B2	5.80 6.25
Sterling, Ill. (1) N15	5.70 6.15
Struthers, O. Y1	5.70 6.15
Torrance, Cal. C11	6.65
Worcester A7	6.00 6.45

<b>ROPE WIRE (A)</b>	
Altan, Ill. L1	8.65 (B)
Bartonville, Ill. K4	8.55 8.80
Buffalo W12	8.55 8.80
Fostoria, O. S1	8.85 9.10
Johnstown, Pa. B2	8.85 9.10
Monessen, Pa. P16	8.85 9.10
Monessen, Pa. P7	8.80 9.05
Muncie, Ind. I-7	8.75 9.00
Palmer, Mass. W12	8.85 9.10
Portsmouth, O. P12	8.85 9.10
Roebing, N.J. R5	8.85 9.10
Sparrows Pt. B2	8.85 9.10
Struthers, O. Y1	8.85 9.10
Worcester J4, T6	8.85 9.10

(A) Plow and Mild Plow.  
(B) Improved Plow.

### WIRE, Manufacturers Bright, Low Carbon

Alabama City, Ala. R2	4.85
Alliquippa, Pa. J5	4.85
Atlanta A11	5.10
Altan, Ill. L1	5.05
Bartonville, Ill. (1) K4	4.85
Buffalo W12	4.85
Chicago W13	5.10
Cleveland A7, C20	4.85
Crawfordsville, Ind. M8	5.10
Donora, Pa. A7	4.85
Duluth, Minn. A7	4.85
Fairfield, Ala. T2	4.85
Fostoria, O. (24) S1	5.35
Houston S5	5.25
Johnstown, Pa. B2	4.85
Joliet, Ill. A7	4.85
Kansas City, Mo. S5	5.45
Kokomo, Ind. C16	4.95
Los Angeles B3	5.80
Minnequa, Colo. C10	5.10
Monessen, Pa. P7	5.10
Newark 6-8 ga. I-1	5.50
No. Tonawanda B11	4.85
Palmer, Mass. W12	5.15
Pittsburg, Calif. C11	5.80
Portsmouth, O. P12	5.25
Rankin, Pa. A7	4.85
So. Chicago, Ill. R2	4.85
So. San Francisco C10	5.80
Sparrows Point, Md. B2	4.95
Sterling, Ill. (1) N15	4.85
Struthers, O. Y1	4.85
Torrance, Calif. C11	5.80
Waukegan, Ill. A7	4.85
Worcester, Mass. A7, T6	5.15

### WIRE, Cold-Rolled Flat

Anderson, Ind. G6	6.20
Buffalo W12	6.35
Cleveland A7	5.85
Crawfordsville, Ind. M8	6.20
Detroit D2	6.20
Dover, O. G6	6.20
Fostoria, O. S1	6.00
Kokomo, Ind. C16	5.70
Franklin Park, Ill. T6	6.20
Massillon, O. RS	5.85
Monessen, Pa. P16	5.85
Monessen, Pa. P7	6.10
New Haven, Conn. D2	6.50
Pawtucket, R.I. (12) N8	6.85
Trenton, N.J. R5	6.15
Worcester, Mass. A7	6.15
Worcester, Mass. T6	6.50
Worcester, Mass. W12	6.65

### WIRE, Galv'd ACSR for Cores

Bartonville, Ill. K4	8.50
Monessen, Pa. P16	8.50
Muncie, Ind. I-7	8.70
Roebing, N.J. R5	8.80
Sparrows Point, Md. B2	8.60
Johnstown, Pa. B2	8.50

<b>WIRE (16 gauge)</b>	
Alliquippa J5	10.15 12.15
Bartonville (1) K4	10.25 11.95
Cleveland A7	10.25 12.15
Crawfordsville M8	10.30 12.00
Fostoria, O. S1	10.40 13.00
Johnstown B2	10.25 11.95
Kokomo C16	10.25 11.95
Minnequa C10	10.40 12.40
Palmer, Mass. W12	10.25 12.15
Pitts. Cal. C11	10.60 12.50
Prtsmth. (18) P12	10.55 12.30
Sparrows Pt. B2	10.35 12.25
Waukegan A7	10.25 12.15

### WIRE, MB Spring, High Carbon

Alliquippa, Pa. J5	6.25
Altan, Ill. L1	6.45
Bartonville, Ill. (1) K4	6.25
Buffalo W12	6.25
Cleveland A7	6.25
Donora, Pa. A7	6.25
Duluth, Minn. A7	6.25
Fostoria, O. S1	6.25
Johnstown, Pa. B2	6.25
Los Angeles B3	7.20
Milbury, Mass. (12) N6	8.05
Monessen, Pa. P7, P16	6.25
Muncie, Ind. I-7	6.45
Palmer, Mass. W12	6.55
Pittsburg, Calif. C11	7.20
Roebing, N.J. R5	6.55
Portsmouth, O. P12	6.25
So. Chicago, Ill. R2	6.25
So. San Francisco C10	7.20
Sparrows Point, Md. B2	6.35
Struthers, O. Y1	6.25
Trenton, N.J. A7	6.55
Waukegan, Ill. A7	6.25
Worcester A7, T6	6.55
Worcester, Mass. J4	6.75

### WIRE, Fine and Weaving (8" Coils)

Bartonville, Ill. (1) K4	8.90
Buffalo W12	8.90
Chicago W13	8.90
Cleveland A7	8.90
Crawfordsville, Ind. M8	8.95
Fostoria, O. S1	8.90
Johnstown, Pa. B2	8.90
Kokomo, Ind. C16	8.90
Monessen, Pa. P16	8.90
Muncie, Ind. I-7	9.10
Palmer, Mass. W12	9.20
Portsmouth, O. P12	8.90
Roebing, N.J. R5	9.20
Waukegan, Ill. A7	8.90
Worcester, Mass. A7, T6	9.20

### WIRE, Barbed

Alabama City, Ala. R2	137
Alliquippa, Pa. J5	141
Atlanta A11	144
Bartonville, Ill. (19) K4	144
Crawfordsville, Ind. M8	146
Donora, Pa. A7	141
Duluth, Minn. A7	141
Fairfield, Ala. T2	141
Houston, Tex. S5	149
Johnstown, Pa. B2	141
Joliet, Ill. A7	141
Kansas City, Mo. S5	153
Kokomo, Ind. C16	143
Minnequa, Colo. C10	147
Monessen, Pa. P7	146
Pittsburg, Calif. C11	161
Portsmouth, O. (18) P12	148
Rankin, Pa. A7	141
So. Chicago, Ill. R2	137
So. San Fran., Calif. C10	161
Sparrows Point, Md. B2	143
Sterling, Ill. (1) N15	141

### BALE TIES, Single Loop

Alabama City, Ala. R2	123
Atlanta A11	126
Bartonville, Ill. (19) K4	123
Crawfordsville, Ind. M8	132
Donora, Pa. A7	123
Duluth, Minn. A7	123
Fairfield, Ala. T2	123
Joliet, Ill. A7	123
Kansas City, Mo. S5	135
Kokomo, Ind. C16	125
Minnequa, Colo. C10	128
Pittsburg, Calif. C11	128
So. Chicago, Ill. R2	123
So. San Fran., Calif. C10	147
Sparrows Point, Md. B2	125
Sterling, Ill. (1) N15	123

### WIRE, Upholstery Spring

Alliquippa, Pa. J5	5.90
Altan, Ill. L1	6.10
Buffalo W12	5.90
Cleveland A7	5.90
Donora, Pa. A7	5.90
Duluth, Minn. A7	5.90
Johnstown, Pa. B2	5.90
Los Angeles B3	6.85
Monessen, Pa. P7, P16	5.90
New Haven, Conn. A7	6.20
Palmer, Mass. W12	6.20
Pittsburg, Calif. C11	6.85
Portsmouth, O. P12	5.90
Roebing, N.J. R5	6.20
So. Chicago, Ill. R2	5.90
So. San Francisco C10	6.85
Sparrows Point, Md. B2	6.00
Torrance, Calif. C11	6.85
Trenton, N.J. A7	6.20
Waukegan, Ill. A7	5.90
Worcester, Mass. A7	6.20

### WOVEN FENCE, 9-15 1/2 Ga. Col.

Alabama City, Ala. R2	127
Ala. City, Ala., 17-18 ga. R2	124
Alliquippa, Pa. 9-14 1/2 ga. J5	131
Atlanta A11	134
Bartonville, Ill. (19) K4	131
Crawfordsville, Ind. M8	133
Donora, Pa. A7	131
Duluth, Minn. A7	131
Fairfield, Ala. T2	131
Houston, Tex. S5	139
Johnstown, Pa. B2	131
Johnstown, 17 ga., 6" B2	205
Johnstown, 17 ga., 4" B2	208
Joliet, Ill. A7	131
Kansas City, Mo. S5	143
Kokomo, Ind. C16	133
Minnequa, Colo. C10	139
Monessen, Pa. P7	136
Pittsburg, Calif. C11	154
Portsmouth, O. (18) P12	138
Rankin, Pa. A7	131
So. Chicago, Ill. R2	127
Sterling, Ill. (1) N15	131

### FENCE POSTS

Chicago Hts., Ill. C2	140
Duluth, Minn. A7	125
Franklin, Pa. F5	140
Huntington, W. Va. W7	140
Johnstown, Pa. B2	140
Marion, O. P11	140
Minnequa, Colo. C10	130
Moline, Ill. R2	136
So. Chicago, Ill. R2	140
Tonawanda, N.Y. B12	140
Williamsport, Pa. S19	150

### TRACK BOLTS (20) Treated

Kansas City, Mo. S5	9.85
Lebanon, Pa. (31) B2	9.85
Minnequa, Colo. C10	9.85
Pittsburgh O3, P14	9.85
Seattle B3	10.35

### RAILS

Bessemer, Pa. U5	3.60
Ensley, Ala. T2	3.60
Fairfield, Ala. T2	3.60
Gary, Ind. U5	3.60
Huntington, W. Va. W7	3.60
Indiana Harbor, Ind. I-2	3.60
Johnstown, Pa. B2	3.60
Lackawanna, N.Y. B2	3.60
Minnequa, Colo. C10	3.60
Steeltown, Pa. B2	3.60
Williamsport, Pa. S19	3.60

### TOOL STEEL

<b>Grade</b>		<b>\$ per lb</b>
Regular Carbon	.....	0.230
Extra Carbon	.....	0.270
Special Carbon	.....	0.325
Oil Hardening	.....	0.350
5% Cr Hot Work	.....	0.350
Hi-Carbon-Cr	.....	0.635

### Grade by Analysis

W	Cr	V	Co	
18	4	1	.....	1.505
18	4	2	.....	1.650
20.25	4.25	1.6	12.25	3.535-3.675
19	4	2	7	2.460
18.25	4.25	1	4.75	2.125
18	4	2	9	2.445-2.45
13.5	4	3	.....	1.6025

### W Cr V Mo

6.4	4.5	19.5	5	0.96-0.965
6	4	3	6	1.190
1.5	4	1	8.5	0.810

### Tool steel producers include:

A4, A8, B2, B8, C4, C9, C13,	
C18, D4, F2, J3, L3, M14, S8,	
U4, V2 and V3.	

### Footnotes:

- (1) Chicago base.
- (2) Angles, flats, bands.
- (3) Merchant.
- (4) Reinforcing.
- (5) Philadelphia del.
- (6) Chicago or Birm. base.
- (7) To jobbers, 3 cols. lower.
- (8) 16 gage and heavier.

### NAILS & STAPLES, Stock

<b>To dealers &amp; mfrs. (7) Col.</b>	
Alabama City, Ala. R2	118
Alliquippa, Pa. (13) J5	118
Atlanta A11	121
Bartonville, Ill. (19) K4	118
Chicago, Ill. W13	118
Cleveland A9	125
Crawfordsville, Ind. M8	122
Donora, Pa. A7	118
Duluth, Minn. A7	118
Fairfield, Ala. T2	118
Galveston, Tex. D7	126
Houston, Tex. S5	126
Johnstown, Pa. B2	118
Joliet, Ill. A7	118
Kansas City, Mo. S5	130
Kokomo, Ind. C16	120
Minnequa, Colo. C10	123
Monessen, Pa. P7	124
Pittsburg, Calif. C11	137
Portsmouth, O. P12	124
Rankin, Pa. A7	118
So. Chicago, Ill. R2	118
Sparrows Point, Md. B2	120
Sterling, Ill. (1) N15	118
Torrance, Calif. C11	138
Worcester, Mass. A7	124

### NAILS, Cut (100 lb keg)

<b>To dealers (33)</b>	
Conshohocken, Pa. A3	\$7.35
Wheeling, W. Va. W10	7.35

### TIE PLATES

Fairfield, Ala. T2	4.50
Gary, Ind. U5	4.50
Ind. Harbor, Ind. I-2	4.50
Lackawanna, N.Y. B2	4.50
Minnequa, Colo. C10	4.50
Pittsburg, Calif. C11	4.65
Seattle B3	4.65
Steeltown, Pa. B2	4.50
Torrance, Calif. C11	4.65

### JOINT BARS

Bessemer, Pa. U5	4.70
Fairfield, Ala. T2	4.70
Ind. Harbor, Ind. I-2	4.70
Joliet, Ill. U5	4.70
Lackawanna, N.Y. B2	4.70
Minnequa, Colo. C10	4.70
Steelton, Pa. B2	4.70



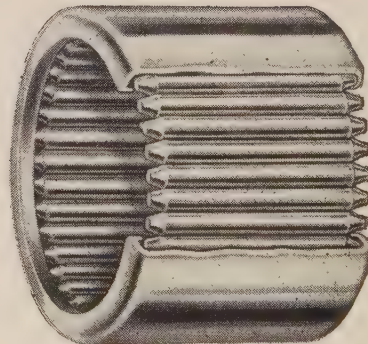


## when high capacity pays off...

Torrington Needle Bearings are designed to handle heavy loads. A full complement of small diameter rollers distributes the load evenly over a large area. Thus—for a given O.D.—a Needle Bearing has greater rated radial load capacity than any other type of anti-friction bearing.

Other Needle Bearing advantages—compact size, light weight, ease of installation and maintenance—pay off, too. So let our engineers help you—as they have many others—take full advantage of Torrington Needle Bearings in *your* product.

THE TORRINGTON COMPANY  
Torrington, Conn. South Bend 21, Ind.  
*District Offices and Distributors in Principal  
Cities of United States and Canada*



# TORRINGTON NEEDLE BEARINGS

Needle • Spherical Roller • Tapered Roller • Straight Roller • Ball • Needle Roller



## STANDARD PIPE, T &amp; C

JTWELDED Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, %					
			Black			Galvanized		
A	B	C	D	E	F			
1/2	5.5c	0.24	34.0	32.0	...	+0.5	+2.5	...
3/4	6.0	0.42	28.5	26.5	...	+3.5	+5.5	...
1	6.0	0.57	23.5	21.5	...	+10.0	+12.0	...
1 1/4	8.5	0.85	36.0	34.0	...	12.0	10.0	11.0
1 1/2	11.5	1.18	39.0	37.0	...	16.0	14.0	15.0
2	17.0	1.68	41.5	39.5	...	19.5	17.5	18.5
2 1/2	23.0	2.28	42.0	40.0	...	20.5	18.5	19.5
3	27.5	2.78	42.5	40.5	...	21.5	19.5	20.5
3 1/2	37	3.68	43.0	41.0	...	22.0	20.0	21.0
4	58.5	5.82	43.5	41.5	...	23.0	21.0	22.0
4 1/2	78.5	7.82	43.5	41.5	...	23.0	21.0	22.0

Column A: Etna, Pa N2 and 36 1/2 on 3 1/2", 4"; Butler, a. 1/2-3/4", F6; Benwood, W. Va., 3 1/2 points lower on 1/2", 3/4 points lower on 3/4", and 2 points lower on 3/4", W10; Sharon, Pa. M6, 1 point higher on 1/2", 2 points lower on 1/2" and 3/4"; Wheatland, Pa. W9, 2 points lower on 1/2", 3/4", 3/2". Following make 1/2" and larger: Lorain, O. N3; Youngstown R2 and 36 1/4 on 3 1/2" and 4"; Youngstown Y1; Aliquippa, Pa. J5; Fontana, Calif. K1 quotes 1 1/2 points lower on 1/2" and larger continuous weld and 2 1/2 on 1/2" and 4".

Columns B & E: Sparrows Point, Md. B2.  
Columns C & F: Indiana Harbor, Ind., Y1; Alton, Ill., Gary base) 2 points lower discount L1.  
Column D: Butler, Pa. F6, 1/2-3/4"; Benwood, W. Va. W10, except plus 4% on 1/2", plus 6% on 3/4", plus 13% on 1/2" and 15.5% on 3 1/2", 4"; Sharon, Pa. M6, plus 2.5 on 1/2", 1 point lower on 3/4", 1 1/2 points lower on 1" and 1 1/2", points lower on 1 1/2", 2", 2 1/2" and 3"; Wheatland, Pa. V9, add 2 points on 1/2", 3/4", 3/2", 1 point lower on 3/4", 2 points lower on 1", 1 1/2", 2", 1 1/2 points lower on 1 1/2", 3/4", 3". Etna, Pa. N2 and 15.5% on 3 1/2", 4". Following quote only on 1/2" and larger: Lorain, O. N3; Youngstown R2, and 15 1/2 on 3 1/2" and 4"; Youngstown Y1, Aliquippa, Pa. J5 quotes 1 point lower on 1/2", 2 points lower on 1", 1/2", 2", 1 1/2 points lower on 1 1/2", 2 1/2" and 3".

SEAMLESS AND ELECTRIC WELD Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, %					
			Seamless			Elec. Weld		
A	B	C	D	E	F			
1/2	37.0c	3.68	29.5	8.0	29.5	8.0		
3/4	58.5	5.82	32.5	11.5	32.5	11.5		
1	76.5	7.62	32.5	11.5	32.5	11.5		
1 1/4	92.0	9.20	34.5	13.5	34.5	13.5		
1 1/2	\$1.09	10.89	34.5	13.5	34.5	13.5		
2	1.48	14.81	37.0	16.0	37.0	16.0		
2 1/2	1.92	19.18	37.0	16.0	37.0	16.0		

Column A: Aliquippa J5; Ambridge N2; Lorain N3; Youngstown Y1.

Column B: Aliquippa J5 quotes 1 1/2 pts lower on 2", 1 pt lower on 2 1/2-6-in.; Lorain N3; Youngstown Y1.

Columns C & D: Youngstown R2.

## BOILER TUBES

Net base c.l. prices, dollars per 100 ft., mill; minimum wall thickness, cut lengths 10 to 24 ft, inclusive.

O.D. In.	B.W. Ga.	Seamless		Elec. Weld	
		H.R.	C.D.	H.R.	C.D.
1	13	13.45	16.47	15.38	15.38
1 1/4	13	16.09	19.71	15.61	18.19
1 1/2	13	17.27	21.15	17.25	20.30
2	13	19.29	23.62	19.62	23.09
2 1/4	13	21.62	26.48	21.99	25.86
2 1/2	13	24.35	29.82	24.50	28.84
3	12	26.92	32.97	26.98	31.76
3 1/2	12	29.65	36.32	29.57	34.76
4	12	32.11	39.33	31.33	36.84
4 1/2	12	34.00	41.64	32.89	38.70

## CLAD STEELS

(Cents per pound)

Cladding	Plates		Strip		Sheets		Cu Base
	Carbon Base	10% 20%	Cold-Rolled	Carbon Base	Carbon Base	Both Sides	
302	...	...	...	...	19.75	26.24-27.50	77.00
304	25.00	29.50	...	...	24.50	27.50-27.77	77.00
309	30.50	35.00	...	...	...	...	144.00
310	36.50	41.00	...	...	...	...	...
316	29.50	34.00	...	...	26.00	35.92-36.50	...
317	34.50	39.00	...	...	...	...	...
318	33.50	38.00	...	...	...	...	...
321	26.50	31.00	...	...	23.00	33.00	111.00
347	27.50	32.00	...	...	24.00	33.50-33.83	130.00
405	21.25	27.75	...	...	...	...	...
410	20.75	27.25	...	...	...	...	...
Nickel	33.55	45.15	41.00	54.00	...	...	...
Inconel	41.23	54.18	...	...	...	...	165.00
Monel	34.93	46.28	...	...	...	...	...
Copper	...	...	23.70	29.65	...	...	...

\* Deoxidized. † 20.20c for hot-rolled. ‡ 26.40c for hot-rolled. Production points for carbon base products: Stainless plates, sheet, Conshohocken, Pa. A3 and New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7 and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; nickel, copper-clad strip, Carnegie, Pa., S18. Production point for copper-base sheets is Carnegie, Pa. A13.

## BOLTS, NUTS

CARRIAGE, MACHINE BOLTS  
(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

6 in. and shorter:  
1/2-in. & smaller diam. 15  
3/4-in. & 1/2-in. 18.5  
1-in. & larger 17.5  
Longer than 6 in.:  
All diams. 14  
Lag bolts, all diams.:  
6 in. and shorter 23  
over 6 in. long 21  
Ribbed Necked Carriage Blank 18.5  
Plow 34  
Step, Elevator, Tap and Sleigh Shoe 43  
Tire bolts 21  
Boiler & Fitting-Up Bolts 31

## NUTS

H.P. & C.P. Reg. Hvy. Square:  
1/2-in. & smaller 15  
3/4-in. & 1/2-in. 12  
1-in. & larger 9  
H.P. Hex.:  
1/2-in. & smaller 26  
3/4-in. & 1/2-in. 16.5  
1-in. & larger 12  
C. P. Hex.:  
1/2-in. & smaller 26  
3/4-in. & 1/2-in. 23  
1-in. & larger 12

## SEMFINISHED NUTS

American Standard  
(Per cent off list for less than case or keg quantities)

1/2-in. & smaller 35  
3/4-in. & 1/2-in. 29.5  
1-in. & larger 13  
Light  
1/2-in. & smaller 35  
3/4-in. to 1-in. 28.5  
1-in. to 1 1/2-in. 26

## STEEL STOVE BOLTS

(F.o.b. plant, per cent off list in packages)  
Plain finish 48 & 10  
Plated finishes 31 & 10

## HEXAGON CAP SCREWS

(1020 steel; packaged: per cent off list)  
6 in. or shorter:  
1/2-in. & smaller 42  
3/4-in. through 1 in. 34  
Longer than 6 in.:  
1/2-in. & smaller 26  
3/4-in. through 1 in. 4

## SQUARE HEAD SET SCREWS

(Packaged; per cent off list)  
1 in. diam x 6 in. and shorter 38  
1 in. and smaller diam. x over 6 in. 26

## HEADLESS SET SCREWS

(Packaged; per cent off list)  
No. 10 and smaller 35  
1/4-in. diam. & larger 16  
N.F. thread, all diams. 10

## RIVETS

F.o.b. midwestern plants  
Structural 1/2-in., larger 7.85c  
1/2-in. under 36 off

## WASHERS, WROUGHT

F.o.b. shipping point, to jobbers—List to list-plus-\$1

## FLUORSPAR

Metallurgical grade, f.o.b. shipping point, in Ill., Ky., net tons, carloads, effective CaF<sub>2</sub> content 70%, \$43; 60%, \$40.  
Imported, net ton, duty paid, metallurgical grade, \$33-\$35.

## ELECTRODES

(Threaded, with nipples, unboxed f.o.b. plant)

## GRAPHITE

Inches	Length	Cents per lb
17, 18, 20	60, 72	17.85
8 to 16	48, 60, 72	17.85
7	48, 60	19.57
6	48, 60	20.95
35, 40	110	8.03
20	65, 84, 110	8.03
34	72 to 104	8.03
17 to 20	34, 90	8.03

## STAINLESS STEEL

Type	Sheets	C.R. Strip	Bars
301...	41.00	34.00	31.25
302...	41.25	36.75	31.50
303...	43.25	40.25	34.00
304...	43.25	38.75	33.00
309...	56.00	55.00	44.75
316...	57.00	59.00	49.25
321...	49.25	48.25	37.00
347...	53.75	52.25	41.50
410...	36.50	36.50	25.75
416...	37.00	37.00	26.25
420...	44.00	47.00	31.25
430...	39.00	31.00	28.25
501...	27.50	26.00	14.25
502...	28.50	27.00	15.25

Balt., Types 301-347 sheet, except 303 and 309 E2.  
Brackenridge, Pa., sheets A4 quotes slight variations on Types 301-347.  
Bridgeville, Pa., bars, wire, sheets & strip U4.  
Butler, Pa., sheets and strip except Types 303, 309, 416, 420, 501 & 502, A10.  
Carnegie, Pa., sheets and strip except Types 303, 416, 501 & 502 S18.  
Cleveland, strip A7.  
Detroit, strip M1 quotes 34.00c on Type 301; 36.50c, 302; 38.50c, 304; 58.50c, 316; 52.00c, 347; 30.50c, 410; 31.00c, 430.  
Dunkirk, N. Y., bars, wire A4 quotes slight variations on Types 301-347.  
Duquesne, Pa., bars U5.  
Fort Wayne, Ind., bars and wire, except Types 501 & 502 J6 quotes slight variations on Types 301-347.  
Gary, Ind., sheets except Type 416 U5.  
Harrison, N. J., strip and wire C18.  
Massillon, O., all items, R2.  
McKeesport, Pa., strip, Type 410; bars & wire, Types 410 through 430 and 31.25c on Type 302, 33.75c on 303, 32.75c on 304, 48.75c on 316, 36.75c on 321, 41.25c on 347 F2.  
McKeesport, Pa., bars, sheets except Type 416 U5.  
Middletown, O., sheets and strip except Types 303, 416, 420, 501 and 502 A10.  
Midland, sheets & strip C18.  
Munhall, Pa., bars U5.  
Muncie, Ind., wire I-7 quotes types 302, 304, 430.  
Pittsburgh, sheets C18.  
Reading, Pa., strip except 34.25c on Type 301 and 56.00c on 309; bars, except 31.50c on Type 301 and 45.25c on 309 C4.  
Sharon, Pa., strip, except Types 303, 309, 416, 501, 502 and 34.25c on Type 301 S3.  
So. Chicago, Ill., bars & structurals U5.  
Syracuse, N. Y., bars, wire & structurals C18.  
Titusville, Pa., bars U4.  
Wallingford, Conn., strip W2 quotes 0.25c higher.  
Washington, Pa., bars, sheets & strip, except 0.25c higher on Type 301 J3.  
Washington, Pa., Types 301 through 347 sheets & strip except 303, 309; 316 sheets 62.00c, strip 64.00c W4.  
Watervliet, N. Y., structurals & bars A4 quotes variations on Types 301-347.  
Waukegan, bars & wire A7.  
West Leechburg, Pa., strip, A4 quotes slight variations on Types 301-347.  
Youngstown, strip except Types 303, 309, 316, 416, 501 and 502 and 34.25c on Type 301 C8.

Spot, cents per gallon, ovens  
Pure benzol 30.00-35.00  
Toluol, one deg. 28.00-33.00  
Industrial xylol 25.00-33.50

Per ton bulk ovens  
Sulphate of ammonia, \$32-\$45  
Cents per pound, ovens  
Phenol, 40 (carlots, non-returnable drums) 17.25

Per ton bulk ovens  
Sulphate of ammonia, \$32-\$45  
Cents per pound, ovens  
Phenol, 40 (carlots, non-returnable drums) 17.25

## COAL CHEMICALS

Spot, cents per gallon, ovens  
Pure benzol 30.00-35.00  
Toluol, one deg. 28.00-33.00  
Industrial xylol 25.00-33.50

## METAL POWDERS

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted.)

Sponge iron: Cents  
98+ % Fe, annealed. 15.00  
Unannealed 14.50  
Swedish, c.i.f. New York, in bags. 8.85-9.95  
Electrolytic iron:  
Annealed, 99.5% Fe. 42.50  
Unannealed (99 + % Fe) 36.50  
Unannealed, 99 + % Fe (minus 325 mesh) 53.50  
Powder Flakes 48.50  
Carbonyl Iron:  
97.9-99.8% size 5 to 10 microns 83.00-148.00

Aluminum:  
Carlots, freight allowed 29.50  
Atomized, 500 lb drums, freight allowed 32.50  
Antimony, 500 lb lots 71.00  
Brass, 20-ton lots 28.25-32.00  
Bronze, 10-ton lots 51.25-60.00  
Phosphor-Copper, 20-ton lots 50.00

Copper:  
Electrolytic 37.25  
Reduced 34.75  
Lead 22.50  
Magnesium 75.00-85.00  
Manganese:  
Minus 100 mesh 57.00  
Minus 35 mesh 52.00  
Minus 200 mesh 62.00  
Nickel unannealed 86.00  
Nickel-Silver 5-ton lots 44.50  
Silicon 38.50  
Soldier (plus cost of metal) 8.50  
Stainless Steel, 302 83.00  
Zinc, 10-ton lots 20.00-28.00  
Tungsten Dollars

Melting grade, 99%  
60 to 200 mesh: 1000 lb and over 5.85  
Less than 1000 lb 6.00  
Molybdenum:  
99.9%, minus 200 mesh 3.24  
Chromium, electrolytic 99% Cr min. 3.50

## METALLURGICAL COKE

Price net ton

## BEEHIVE OVENS

Connellsvil.fur. \$14.50-15.00  
Connellsvil.fdy. 16.50-17.50  
New River foundry 20.80  
Wise county, foundry 15.95  
Wise county, furnace 15.20

## OVEN FOUNDRY COKE

Kearney, N. J. ovens \$22.75  
Everett, Mass., ovens  
New England, del. 24.80  
Chicago ovens 23.00  
Chicago, del. 24.50  
Terre Haute, ovens 22.50  
Milwaukee, ovens 23.75  
Indianapolis, ovens 22.75  
Chicago, del. 26.82  
Cincinnati, del. 25.85  
Detroit, del. 27.05  
Ironton, O., ovens 22.50  
Cincinnati, del. 25.12  
Painesville, O., ovens 24.00  
Cleveland, del. 25.82  
Erie, Pa., ovens 23.50  
Birmingham, ovens 20.30  
Cincinnati, del. 25.23  
Philadelphia, ovens 22.70  
Neville Island, Pa., ovens 23.00  
Swedeland, Pa., ovens 22.60  
St. Louis, ovens  
St. Louis, del. 25.40  
Portsmouth, O., ovens 22.50  
Cincinnati, del. 25.12  
Detroit, ovens 24.00  
Detroit, del. 25.00  
Buffalo, del. 26.58  
Flint, del. 26.73  
Pontiac, del. 25.56  
Saginaw, del. 27.08  
\*Or within \$4.55 freight zone from works.



# ELECTROMET Data Sheet

A Digest of the Production, Properties, and Uses of Steels and Other Metals

Published by Electro Metallurgical Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. • In Canada: Electro Metallurgical Company of Canada, Limited, Welland, Ontario

## MANGANESE . . .

## Deoxidizer and Toughener for Steel

Manganese is one of the most important alloys used in making steel. It is practically indispensable as a deoxidizer and cleanser for improving the hot-working properties of steels. When used as an alloying element, it makes steel stronger and tougher and it is therefore an important constituent of many structural and engineering steels.

### Deoxidizes and Cleans Steel

The effectiveness of manganese in deoxidizing steel was first recognized in 1856, when it was used in the Bessemer process of steelmaking to counteract the bad effects of sulphur; in fact, manganese made this process a commercial success. Today, manganese is used as a deoxidizer and cleanser in the production of nearly all grades of open-hearth and electric-furnace steel, as well as high-grade cast iron.

Research work carried out recently in ELECTROMET's laboratories at Niagara Falls, New York, has provided new and important information on the value of manganese as a deoxidizer. This work shows that manganese is a more effective deoxidizer than has been previously realized; and that a combination alloy of silicon and manganese is a much stronger deoxidizer than either silicon or manganese by itself. Complete information is given in a report entitled "Solubility of Oxygen in Liquid Iron Containing Silicon and Manganese." If you would like a copy of this report, free of charge, write to the address above.

### Improves Hot-Working Properties

By combining readily with sulphur, manganese performs another valuable job, it removes the principal cause of hot-shortness or brittleness—thereby giving steel better rolling and forging properties. In this reaction, the manganese combines with the sulphur to form manganese sulphide, as follows:



The manganese sulphide remaining in the steel is a less harmful type of inclusion than the iron sulphide would be, and the hot-working properties of the steel are improved.

The weakening and embrittling tendencies of sulphur in cast iron can also be counteracted by the addition of manganese to the cupola charge.

### Increases Strength, Toughness, and Wear-Resistance

When used as an alloying element in steel, manganese produces a steel with greater strength and toughness, and there is no serious loss of ductility. Additions of about 13 per cent manganese produce the well-known Hadfield manganese steel. High-manganese steels have exceptional resistance to wear; and consequently they have many applications in engineering jobs. Instead of wearing away quickly under conditions combining severe pressure, shock, and abrasion, these steels actually become harder through use. Thus, they last longer.

Because of the tendency of high-manganese steels to work-harden, they serve industry in important and varied applications. Manganese steel castings, for example, are used for railroad frogs and crossings, rock-crusher parts, steam-shovel dipper



Dipper bucket teeth, cast of Hadfield manganese steel, actually increase in hardness under abrasive wear from gravel and rock in construction work — thus last many times longer than those of ordinary steel.

teeth, and dredge-bucket lips. The chief applications of manganese steel are in railroads for special service, and light forgings subjected to heavy wear.

### ELECTROMET Alloys

Manganese is produced by ELECTROMET in forms suitable for practically every use of the iron, steel, and non-ferrous metal industry. Some of the ELECTROMET products are listed below. For a complete description of these alloys, write for a copy of the booklet, "ELECTROMET Products and Service."

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### Alloys of Manganese and Their Uses

Standard Ferromanganese	The product most commonly used for adding manganese to steel for the purpose of alloying or deoxidizing and cleansing.
Low-Carbon Ferromanganese	For adding manganese to steels having a low carbon content, such as stainless steels of the 18 per cent chromium, 8 per cent nickel type.
Medium-Carbon Ferromanganese	Commonly used for making manganese steel containing 1.50 to 2.00 per cent manganese, and in the production of Hadfield manganese steel.
Low-Iron Ferromanganese	For applications in the nickel, aluminum, and copper industries where a low-iron alloy is required.
Silicomanganese	Used by the steel industry as a furnace block; as a deoxidizer; and also for manganese additions, particularly in the production of engineering steels containing 0.10 to 0.50 per cent carbon.
"EM" Silicomanganese Briquets	For adding manganese (with silicon) to cast iron in the cupola.
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## WAREHOUSE STEEL PRODUCTS

(Representative prices, cents per pound, for delivery within switching limits, subject to extras.)

	SHEETS			STRIP		BARS		Standard Structural Shapes	PLATES	
	H.R. 18 Ga., Heavier*	C.R.	Gal. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.	H.R. Alloy 4140††	Carbon	Floor
New York (city)	6.28	7.24	8.37	6.50	...	6.52	7.33	9.29§	6.38	6.74
Jersey City (c'try)	6.09	6.94	8.12	6.36	...	6.22	7.03	8.99§	6.08	6.46
Boston (city) ..	6.45	7.23	8.39	6.40	...	6.30	6.82‡	10.80§	6.45	6.65
Boston (c'try) ..	6.25	7.03	8.19	6.20	...	6.10	6.61‡	10.60§	6.25	6.45
Phila. (city) ...	6.09	7.05	8.20	6.29	7.19	6.35	7.19	10.50§	6.11	6.38
Phila. (c'try) ..	5.84	6.80	7.95	6.04	6.94	6.10	6.94	10.25§	5.86	6.13
Balt. (city) ...	5.74	7.04	8.22	6.27	...	6.25	6.87‡	...	6.37	6.33
Balt. (c'try) ..	5.54	6.84	8.02	6.07	...	6.05	6.67‡	...	6.17	6.13
Norfolk, Va. ...	6.78	...	...	...	...	6.04	7.30	...	6.30	6.30
Richmond, Va. .	5.74	6.57	8.38	6.14	...	5.91	6.59	...	6.72	6.86
Wash. (w'hse) .	6.05	7.26	8.49	6.50	...	6.50	7.26	...	6.60	6.65
Buffalo (del.) ..	5.74	6.52	8.26	6.06	...	5.72	6.65‡	10.72	6.02	6.18
Buffalo (w'hse) .	5.54	6.32	8.06	5.86	...	5.52	6.45‡	10.52	5.82	5.98
Pitts. (w'hse) ..	5.54	6.32	7.65	5.59	6.90	5.47	6.15	10.10	5.65	5.65
Detroit (w'hse) .	5.74	6.49	7.96	5.78	7.15	5.76	6.60	10.37	6.12	6.17
Cleveland (del.)	5.74	6.52	7.96	5.85	7.14	5.81	6.35‡	10.41	6.15	6.02
Cleve. (w'hse) .	5.54	6.32	7.76	5.65	6.94	5.61	6.15‡	10.21	5.95	5.82
Cincin. (w'hse) .	5.87	6.39	8.12	5.79	...	5.77	6.66	10.52	6.12	6.17
Chicago (city) ..	5.74	6.52	7.85	5.69	...	5.67	6.25‡	10.30	5.85	5.85
Chicago (w'hse) .	5.54	6.32	7.65	5.49	...	5.47	6.05‡	10.10	5.65	5.65
Milwau. (city) .	5.90	6.63	8.01	5.85	...	5.83	6.51‡	10.37	6.01	6.01
Milwau. (c'try) .	5.70	6.43	7.81	5.65	...	5.63	6.31‡	10.17	5.81	5.81
St. Louis (del.)	6.04	6.80	8.15	5.99	...	5.97	6.65‡	10.60	6.25	6.25
St. L. (w'hse) .	5.84	6.60	7.95	5.79	...	5.77	6.45‡	10.40	6.05	6.05
Kans. City (city)	6.40	7.20	8.40	6.35	...	6.35	7.20	...	6.50	6.60
Kans. City (w'hse)	6.20	7.00	8.20	6.15	...	6.15	7.00	...	6.30	6.40
Birm'hm (city) ..	5.75	6.55	6.90‡	5.70	...	5.70	7.53	...	5.85	6.10
Birm'hm (w'hse) .	5.60	6.40	6.75‡	5.55	...	5.55	7.53	...	5.70	5.95
Los Ang. (city) ..	6.50	8.30‡	9.45	6.60	10.65	6.45	8.05	11.50	6.50	6.50
L. A. (w'hse) ..	6.30	8.10‡	9.30	6.40	10.45	6.25	7.85	11.30	6.30	6.30
Seattle-Tacoma.	7.16	8.38	9.45	7.25	...	7.08	8.86	10.35§	6.52	6.89
San Fran. (w'hse)	6.64	7.88‡	9.10‡	6.42	...	6.32	8.20	11.30§	6.30	6.43

\* Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ add 25-cent special bar quality extra; § as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; ‡—500 to 1499 lb; §—450 to 1499 lb, §—1000 to 1999 lb.

## Ores

## Lake Superior Iron Ore

(1952 prices not established; 1951 contract prices follow.)

Gross ton, 51½% (natural), lower lake ports.	
After adjustment for analysis, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in applicable lake vessel rates, upper lake rail, freight, dock handling charges and taxes thereon.	
Old range bessemer .....	\$8.70
Old range nonbessemer .....	8.55
Mesabi bessemer .....	8.45
Mesabi nonbessemer .....	8.30
High phosphorus .....	8.30

## Eastern Local Ore

Cents per unit del., E. Pa.

Foundry and basic 56-62% concentrates contract .....	17.00
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## Foreign Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:	
Spot .....	nom.
Long-term contract .....	20.00-24.00
North African hematites (spot) ..	26.00-28.00
Brazilian iron ore, 68-69% (spot) ..	30.00-31.00

## Tungsten Ore

Net ton unit, duty paid

Foreign wolframite and scheelite, per net ton unit .....	\$65.00
Domestic scheelite, mines .....	65.00

## Manganese Ore

Manganese, 48% nearby, \$1.18-1.22 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; shipments against old contracts for 48% ore are being received from some sources at 85c-87c.

## Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

Indian and African	
48% 2.8:1 .....	\$39.00-42.00
48% 3:1 .....	44.00-45.00
48% no ratio .....	30.00-32.00

## South African Transvaal

44% no ratio .....	\$27.00-28.00
48% no ratio .....	34.00-35.00

## Brazilian

44% 25:1 lump .....	nom.
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## Rhodesian

45% no ratio .....	\$29.00
48% no ratio .....	31.50-32.00
48% 3:1 lump .....	50.00-51.00
Domestic—rail nearest seller	
48% 3:1 .....	\$39.00

## Molybdenum

Sulphide concentrates per lb, molybdenum content, mines .....	\$1.00
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## REFRACTORIES

(Ceiling prices, effective Feb. 12, 1952, per 1000 units)

## Fire Clay Brick

*High-Heat Duty:* Pueblo, Colo., \$85; Ashland, Grahn, Hayward, Hitchins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lochhaven, Lumber, Orviston, West Decatur, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parral, Portsmouth, O., Ottawa, Ill., Stevens Pottery, Ga., Woodbridge, N. J., \$94.60; Salina, O., \$99.60; Niles, O., \$104; Los Angeles, Pittsburg, Calif., \$126.

## Silica Brick

*Standard:* Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Portsmouth, O., \$94.60; Hays, Pa., \$100.10; Niles, O., \$102; E. Chicago, Ind., Joliet, Rockdale, Ill., \$104.50; Cutler, Utah, \$111; Los Angeles, \$117.

## Insulating Fire Brick

2300° F: Massillon, O., \$170; Clearfield, Pa., \$171; Augusta, Ga., Beaver Falls, Zeilenople, Pa., Mexico, Mo., \$178.

## Ladle Brick

*Dry Pressed:* Bessemer, Ala., \$81.60; Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Pa., Weilsville, O., \$66; Mexico, Mo., \$70; Clearfield, Pa., Portsmouth, O., \$79.20; Perla, Ark., \$88; Los Angeles, \$105; Pittsburg, Calif., \$106.

## Sleeves

Reesdale, Pa., \$121; Johnstown, Pa., \$121.30; Clearfield, Pa., \$128.70; St. Louis, \$131.45; Athens, Tex., \$134.20.

## Nozzles

Reesdale, Pa., \$193.60; Johnstown, Pa., \$198.55; Clearfield, Pa., \$209; St. Louis, \$213.95; Athens, Tex., \$214.50.

## Runners

Reesdale, Pa., \$150.70; Johnstown, Pa., \$154; Clearfield, Pa., \$160; St. Louis, \$162.25; Athens, Tex., \$166.10.

## High-Alumina Brick

50 Per Cent: Clearfield, Pa., St. Louis, Mexico, Mo., \$158.40; Danville, Ill., \$161.40.  
60 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$200.20; Danville, Ill., \$203.20.  
70 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$233.20; Danville, Ill., \$236.20; Clearfield, Pa., \$240.

## CALCIUM ALLOYS

*Calcium-Manganese-Silicon:* (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 20.0c per lb of alloy, carload packed 20.8c, ton lot 22.3c, less ton 23.3c. Delivered. Spot add 0.25c.

*Calcium-Silicon:* (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 10.0c per lb of alloy, carload packed 20.2c, ton lot 22.1c, less ton 23.6c. Delivered. Spot add 0.25c.

## ZIRCONIUM ALLOYS

*12-15% Zirconium Alloy:* (Zr 12-15%, Si 30-43%, Fe 40-45%, C 0.20% max.). Contract, c.l. lump, bulk 7.0c per lb of alloy, c.l. packed 7.75c, ton lot 8.5c, less ton 9.35c. Delivered. Spot, add 0.25c.

*35-40% Zirconium Alloy:* (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract, carload, lump, packed 20.25c per lb of alloy, ton lot 21c, less ton 22.25c. Freight allowed. Spot add 0.25c.

## BRIQUETTED ALLOYS

*Chromium Briquets:* (Weighing approx. 3½ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 14.50c per lb of briquet, carload packed 15.2c, ton 16.0c, less ton 16.9c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

*Ferromanganese Briquets:* (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk 10.95c per lb of briquet, c.l. packaged 11.75c, ton lot 12.55c, less ton 13.45c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

*Silicomanganese Briquets:* (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 11.5c, per lb of briquet, c.l. packed 11.95c, ton lot 12.75c, less ton 13.65c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

*Silicon Briquets:* (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 6.95c per lb of briquet, c.l. packed 7.75c, ton lot 8.55c, less ton 9.45c. Delivered. Spot, add 0.25c.

(Small size—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 7.1c, c.l. packed 7.9c, ton lot 8.7c, less ton 9.6c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

*Molybde-Oxide Briquets:* (Containing 2½ lb of Mo each) \$1.14 per pound of Mo contained, f.o.b. Langeloth, Pa.

*NOTE:* For current quotations on manganese, titanium and "other" ferroalloys, see page 125, July 28 issue; for chromium, silicon, vanadium, boron, tungsten alloys, page 161, July 21 issue.



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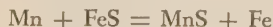
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New York (city)	6.28	7.24	8.37	6.50	...	6.52	7.33	9.29‡	6.38	8.01
New Jersey City (c'try)	6.09	6.94	8.12	6.36	...	6.22	7.03	8.99‡	6.08	7.71
Boston (city) ..	6.45	7.23	8.39	6.40	...	6.30	6.82‡	10.80‡	6.45	7.89
Boston (c'try) ..	6.25	7.03	8.19	6.20	...	6.10	6.61‡	10.60‡	6.25	7.69
Phila. (city) ...	6.09	7.05	8.20	6.29	7.19	6.35	7.19	10.50‡	6.11	7.33
Phila. (c'try) ...	5.84	6.80	7.95	6.04	6.94	6.10	6.94	10.25‡	5.86	7.08
Balt. (city) ...	5.74	7.04	8.22	6.27	...	6.25	6.87‡	...	6.37	7.61
Balt. (c'try) ...	5.54	6.84	8.02	6.07	...	6.05	6.67‡	...	6.17	7.41
Portsmouth, Va. ...	6.78	...	...	...	...	6.04	7.30	...	6.30	7.15
Richmond, Va. ...	5.74	6.57	8.38	6.14	...	5.91	6.59	...	6.72	8.00
Wash. (w'hse) ...	6.05	7.26	8.49	6.50	...	6.50	7.26	...	6.60	7.86
Buffalo (del.) ...	5.74	6.52	8.26	6.06	...	5.72	6.65‡	10.72	6.02	7.55
Buffalo (w'hse) ...	5.54	6.32	8.06	5.86	...	5.52	6.45‡	10.52	5.82	7.35
Pitts. (w'hse) ...	5.54	6.32	7.65	5.59	6.90	5.47	6.15	10.10	5.65	6.89
Detroit (w'hse) ...	5.74	6.49	7.96	5.78	7.15	5.76	6.60	10.37	6.12	7.23
Cleveland (del.)	5.74	6.52	7.96	5.85	7.14	5.81	6.35‡	10.41	6.15	7.39
Cleve. (w'hse) ...	5.54	6.32	7.76	5.65	6.94	5.61	6.15‡	10.21	5.95	7.19
Cincin. (w'hse) ...	5.87	6.39	8.12	5.79	...	5.77	6.66	10.52	6.12	7.31
Chicago (city) ...	5.74	6.52	7.85	5.69	...	5.67	6.25‡	10.30	5.85	7.09
Chicago (w'hse) ...	5.54	6.32	7.65	5.49	...	5.47	6.05‡	10.10	5.65	6.89
Illwau. (city) ...	5.90	6.68	8.01	5.85	...	5.83	6.51‡	10.37	6.01	7.25
Illwau. (c'try) ...	5.70	6.48	7.81	5.65	...	5.63	6.31‡	10.17	5.81	7.05
St. Louis (del.)	6.04	6.80	8.15	5.99	...	5.97	6.65‡	10.60	6.25	7.49
St. L. (w'hse) ...	5.84	6.60	7.95	5.79	...	5.77	6.45‡	10.40	6.05	7.29
Kans. City (city)	6.40	7.20	8.40	6.35	...	6.35	7.20	...	6.50	7.80
Kans. City (w'hse)	6.20	7.00	8.20	6.15	...	6.15	7.00	...	6.30	7.60
Birm'ham (city) ...	5.75	6.55	6.90‡	5.70	...	5.70	7.53	...	5.85	8.23
Birm'ham (w'hse)	5.60	6.40	6.75‡	5.55	...	5.55	7.53	...	5.70	8.23
Los Ang. (city) ...	6.50	8.30‡	9.45	6.60	10.65	6.45	8.05	11.50	6.50	8.75
Los A. (w'hse) ...	6.30	8.10‡	9.30	6.40	10.45	6.25	7.85	11.30	6.30	8.55
Seattle-Tacoma.	7.16	8.38	9.45	7.25	...	7.08	8.86	10.35‡	6.52	8.73
San Fran. (w'hse)	6.64	7.88‡	9.10‡	6.42	...	6.32	8.20	11.30‡	6.30	8.50

\* Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ add 25-cent special bar quality extra; § as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; 2—500 to 1499 lb; 3—450 to 1499 lb; 4—1000 to 1999 lb.

## Ores

## Lake Superior Iron Ore

(1952 prices not established; 1951 contract prices follow.)

Gross ton, 51½% (natural), lower lake ports.	
After adjustment for analysis, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in applicable lake vessel rates, upper lake rail, freights, dock handling charges and taxes hereon.	
Old range bessemer .....	\$8.70
Old range nonbessemer .....	8.55
Mesabi bessemer .....	8.45
Mesabi nonbessemer .....	8.30
High phosphorus .....	8.30

## Eastern Local Ore

Cents per unit del., E. Pa.

Foundry and basic 56-62% concentrates	
contract .....	17.00

## Foreign Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:	
Spot .....	nom.
Long-term contract .....	20.00-24.00
North African hematites (spot) ..	26.00-28.00
Brazilian iron ore, 68-69% (spot) ..	30.00-31.00

## Tungsten Ore

Net ton unit, duty paid

Foreign wolframite and scheelite, per net ton unit .....	\$65.00
Domestic scheelite, mines .....	65.00

## Manganese Ore

Manganese, 48% nearby, \$1.18-1.22 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; shipments against old contracts for 48% ore are being received from some sources at 85c-87c.

## Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

## Indian and African

48% 2.8:1 .....	\$39.00-42.00
48% 3:1 .....	44.00-45.00
48% no ratio .....	30.00-32.00

## South African Transvaal

44% no ratio .....	\$27.00-28.00
48% no ratio .....	34.00-35.00

## Brazilian

44% 25:1 lump .....	nom.
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## Rhodesian

45% no ratio .....	\$29.00
48% no ratio .....	31.50-32.00
48% 3:1 lump .....	50.00-51.00
Domestic—rail nearest seller	
48% 3:1 .....	\$39.00

## Molybdenum

Sulphide concentrates per lb, molybdenum content, mines .....	\$1.00
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## REFRACTORIES

(Ceiling prices, effective Feb. 12, 1952. per 1000 units)

## Fire Clay Brick

High-Heat Duty: Pueblo, Colo., \$85; Ashland, Grahm, Hayward, Hichins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lochhaven, Lumber, Orviston, West Decatur, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parral, Portsmouth, O., Ottawa, Ill., Stevens Pottery, Ga., Woodbridge, N. J., \$94.60; Salina, O., \$99.60; Niles, O., \$104; Los Angeles, Pittsburg, Calif., \$126.

## Silica Brick

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Portsmouth, O., \$94.60; Hays, Pa., \$100.10; Niles, O., \$102; E. Chicago, Ind., Joliet, Rockdale, Ill., \$104.50; Cutler, Utah, \$111; Los Angeles, \$117.

## Insulating Fire Brick

2300° F: Massillon, O., \$170; Clearfield, Pa., \$171; Augusta, Ga., Beaver Falls, Zellenople, Pa., Mexico, Mo., \$178.

## Ladle Brick

Dry Pressed: Bessemer, Ala., \$61.60; Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Pa., Wells-ville, O., \$66; Mexico, Mo., \$70; Clearfield, Pa., Portsmouth, O., \$79.20; Perla, Ark., \$88; Los Angeles, \$105; Pittsburg, Calif., \$106.

## Sleeves

Reesdale, Pa., \$121; Johnstown, Pa., \$121.30; Clearfield, Pa., \$128.70; St. Louis, \$131.45; Athens, Tex., \$134.20.

## Nozzles

Reesdale, Pa., \$193.60; Johnstown, Pa., \$198.55; Clearfield, Pa., \$209; St. Louis, \$213.95; Athens, Tex., \$214.50.

## Runners

Reesdale, Pa., \$150.70; Johnstown, Pa., \$154; Clearfield, Pa., \$160; St. Louis, \$162.25; Athens, Tex., \$166.10.

## High-Alumina Brick

50 Per Cent: Clearfield, Pa., St. Louis, Mexico, Mo., \$158.40; Danville, Ill., \$161.40.  
60 Per cent: St. Louis, Mexico, Vandalia, Mo., \$200.20; Danville, Ill., \$203.20.  
70 Per cent: St. Louis, Mexico, Vandalia, Mo., \$233.20; Danville, Ill., \$236.20; Clearfield, Pa., \$240.

## CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 20.0c per lb of alloy, carload packed 20.8c, ton lot 22.3c, less ton 23.3c. Delivered. Spot add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 10.0c per lb of alloy, carload packed 20.2c, ton lot 22.1c, less ton 23.6c. Deld. Spot add 0.25c.

## ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 30-43%, Fe 40-45%, C 0.20% max.). Contract, c.l. lump, bulk 7.0c per lb of alloy, c.l. packed 7.75c, ton lot 8.5c, less ton 9.35c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract, carload, lump, packed 20.25c per lb of alloy, ton lot 21c, less ton 22.25c. Freight allowed. Spot add 0.25c.

## BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3½ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 14.50c per lb of briquet, carload packed 15.2c, ton lot 16.0c, less ton 16.9c. Deld. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk 10.95c per lb of briquet, c.l. packaged 11.75c, ton lot 12.55c, less ton 13.45c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 11.15c, per lb of briquet, c.l. packed 11.95c, ton lot 12.75c, less ton 13.65c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 6.95c per lb of briquet, c.l. packed 7.75c, ton lot 8.85c, less ton 9.45c. Delivered. Spot, add 0.25c.

(Small size—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 7.1c, c.l. packed 7.9c, ton lot 8.7c, less ton 9.6c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdenic-Oxide Briquets: (Containing 2½ lb of Mo each) \$1.14 per pound of Mo contained, f.o.b. Langeloth, Pa.

NOTE: For current quotations on manganese, titanium and "other" ferroalloys, see page 125, July 28 issue; for chromium, silicon, vanadium, boron, tungsten alloys, page 161, July 21 issue.



## CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Feb. 5, 1952.

STEELMAKING SCRAP  
COMPOSITE

July 31 .....	\$43.00
July 24 .....	42.67
June, 1952 .....	42.63
July, 1951 .....	44.00
July, 1947 .....	37.23

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

Basing point ceiling prices per gross ton from which maximum shipping prices are computed on scrap of dealer and industrial origin; and from which ceiling on-line and ceiling delivered prices are computed on scrap of railroad origin.

Grade 1	No. 1 Bundles Dealer, Industrial	No. 1 Heavy Melt Railroad
<b>Basing Point</b>		
Alabama City, Ala. ....	\$39.00	\$41.00
Ashland, Ky. ....	42.00	44.00
Atlanta, Ga. ....	39.00	41.00
Bethlehem, Pa. ....	42.00	44.00
Birmingham, Ala. ....	39.00	41.00
Brackenridge, Pa. ....	44.00	46.00
Buffalo, N. Y. ....	43.00	45.00
Butler, Pa. ....	44.00	46.00
Canton, O. ....	44.00	46.00
Chicago, Ill. ....	42.50	44.50
Cincinnati, O. ....	43.00	45.00
Claymont, Del. ....	42.50	44.50
Cleveland, O. ....	43.00	45.00
Coatesville, Pa. ....	42.50	44.50
Conshohocken, Pa. ....	42.50	44.50
Detroit, Mich. ....	41.15	43.15
Duluth, Minn. ....	40.00	42.00
Harrisburg, Pa. ....	42.50	44.50
Houston, Tex. ....	37.00	39.00
Johnstown, Pa. ....	44.00	46.00
Kansas City, Mo. ....	39.50	41.50
Kokomo, Ind. ....	42.00	44.00
Los Angeles ....	35.00	37.00
Middletown, O. ....	43.00	45.00
Midland, Pa. ....	44.00	46.00
Minnequa, Colo. ....	38.00	40.00
Monessen, Pa. ....	44.00	46.00
Phoenixville, Pa. ....	42.50	44.50
Pittsburg, Calif. ....	35.00	37.00
Pittsburgh, Pa. ....	44.00	46.00
Portland, Oreg. ....	35.00	37.00
Portsmouth, O. ....	42.00	44.00
St. Louis, Mo. ....	41.00	43.00
San Francisco ....	35.00	37.00
Seattle, Wash. ....	35.00	37.00
Sharon, Pa. ....	44.00	46.00
Sparrows Pt., Md. ....	42.00	44.00
Steubenville, O. ....	44.00	46.00
Warren, O. ....	44.00	46.00
Weirton, W. Va. ....	44.00	46.00
Youngstown, O. ....	44.00	46.00

## Differentials from Base

Differentials per gross ton for other grades of dealer and industrial scrap:

## O-H and Blast Furnace Grades

2. No. 1 Busheling .....	Base
3. No. 1 Heavy Melting ..	-\$1.00
4. No. 2 Heavy Melting ..	- 1.00
5. No. 2 Bundles .....	- 1.00
6. Machine Shop Turnings ..	-10.00
7. Mixed Borings and Short Turnings .....	- 6.00
8. Shoveling Turnings .....	- 6.00
9. No. 2 Busheling .....	- 4.00
10. Cast Iron Borings .....	- 6.00

## Elec. Furnace and Fdry. Grades

11. Billet, Bloom & Forge Crops .....	+ 7.50
12. Bar Crops & Plate .....	+ 5.00
13. Cast Steel .....	+ 5.00
14. Punchings & Plate Scrap ..	+ 2.50
15. Electric Furnace Bundles ..	+ 2.00

## Cut Structurals &amp; Plate:

16. 3 feet and under ....	+ 3.00
17. 2 feet and under ....	+ 5.00
18. 1 foot and under ....	+ 6.00
19. Briquetted Cast Iron Borings .....	Base

## Foundry, Steel:

20. 2 feet and under ....	Base
21. 1 foot and under ....	+ 2.00

22. Springs and Crankshafts ..	+ 1.00
23. Alloy Free Turnings ..	- 3.00
24. Heavy Turnings .....	- 1.00
25. Briquetted Turnings ..	Base
26. No. 1 Chemical Borings ..	- 3.00
27. No. 2 Chemical Borings ..	- 4.00
28. Wrought Iron .....	+ 10.00
29. Shafting .....	+ 10.00
31. Old Tin & Terne Plated Bundles .....	-10.00

## Unprepared Grades

When compressed constitutes:

32. No. 1 Bundles .....	- 6.00
33. No. 2 Bundles .....	- 9.00
34. Other than material suitable for hydraulic compression .....	- 8.00

## Restrictions on Use

(1) Prices for Grades 11 and 23 may be charged only when shipped to a consumer directly from an industrial producer; otherwise ceiling prices shall not exceed prices established for Grades 12 and 8, respectively.

(2) Prices established for Grades 26 and 27 may be charged only when sold for use for chemical or annealing purposes, and in the case of Grade 27, for briquetting and direct charge into an electric furnace; otherwise ceiling prices shall not exceed price established for Grade 10.

(3) Prices established for Grade 28 may be charged only when sold to a producer of wrought iron; otherwise ceiling price shall not exceed ceiling price for corresponding grade of basic open-hearth.

(4) Premiums for Grades 11-18, 20 and 21 may be charged only when sold for use in electric and acid open-hearth furnaces or foundries; or in basic O-H or blast furnace under NPA allocation or OPS authorization.

(5) Prices for Grade 29 may be charged only when sold for forging or rerolling purpose.

## Differentials from Base

Differentials per gross ton above or below the price of Grade 1 (No. 1 railroad heavy melting steel) for other grades of railroad steel scrap:

2. No. 2 Heavy Melting Steel .....	-\$2.00
3. No. 2 Steel Wheel ....	Base
4. Hollow Bored Axles and loco, axles with keyways between the wheelseats. ....	Base
5. No. 1 Busheling .....	- 3.50
6. No. 1 Turnings .....	- 3.00
7. No. 2 Turnings, Drillings & Borings .....	-12.00
8. No. 2 Cast Steel and uncut wheelcenters ....	- 6.00
9. Uncut Frogs, Switches. ....	Base
10. Flues, Tubes & Pipes ..	- 8.00
11. Structural, Wrought Iron and/or/steel, uncut ....	- 6.00
12. Destroyed Steel Cars ..	- 8.00
13. No. 1 Sheet Scrap .....	- 9.50
14. Scrap Rails, Random Lengths .....	+ 2.00
15. Rerolling Rails .....	+ 7.00
16. Cut Rails: 3 feet and under ....	+ 5.00
17. 2 feet and under ....	+ 6.00
18. 18 inches and under ....	+ 8.00
19. Cast Steel, No. 1 .....	+ 3.00
20. Uncut Tires .....	+ 2.00
21. Cut Tires .....	+ 5.00
22. Boilers & Side Frames: Uncut .....	Base
23. Cut .....	+ 3.00
24. Angles, Splice Bars & Tie Plates .....	+ 5.00
25. Solid Steel Axles .....	+12.00
26. Steel Wheels, No. 3 oversize .....	Base
27. Steel Wheels, No. 3 ....	+ 5.00
28. Spring Steel .....	+ 5.00
29. Couplers & Knuckles ..	+ 5.00
30. Wrought Iron .....	+ 8.00
31. Fireboxes .....	- 8.00
32. Boilers .....	- 6.00
33. No. 2 Sheet Scrap .....	-13.00
34. Carsides, Doors, Car Ends, cut apart .....	- 6.00
35. Unassorted Iron & Steel ..	- 6.00
36. Unprepared scrap, not suitable for hydraulic compression .....	- 8.00

## Preparation Charges

Ceiling fees per gross ton which may be charged for intranet preparation of any grade of steel scrap of dealer or industrial origin authorized by OPS are:

- (1) For preparing into Grades No. 3, No. 4 or No. 2, \$8.
- (2) For hydraulically compressing Grade No. 1, \$6 per ton; Grade No. 5, \$8.
- (3) For crushing Grade No. 6, \$3. For preparing into: (4) Grade No. 25, \$6. (5) Grade No. 19, \$6. (6) Grades No. 12, No. 13, No. 14, No. 16, or No. 20, \$10. (7) Grade No. 17 or No. 21, \$11. (8) Grade No. 18, \$12. (9) For hydraulically compressing Grade No. 15, \$8. (10) For preparing into Grade No. 28, \$10.

Ceiling fees per gross tons which may be charged for intranet preparation of any grade of steel scrap of railroad origin shall be:

- (1) For preparing into Grade No. 1 and Grade No. 2, \$8.
- (2) For hydraulically compressing Grade No. 13, \$6.

## For preparing into:

- (3) Grade No. 16, \$4.
- (4) Grade No. 17, \$5.
- (5) Grade No. 18, \$7.
- (6) Grade No. 21, \$4.
- (7) Grade No. 23, \$4.

Ceiling fees per gross ton which may be charged for intranet preparation of cast iron are limited to:

- (1) For preparing Grade No. 8 into Grade No. 7, \$9.
- (2) For preparing Grade No. 3 into Grade No. 11, \$7.
- (3) For preparing Grade No. 3 into Grade No. 1, \$4.

## CAST IRON SCRAP

Ceiling price per gross ton for following grades shall be f.o.b. shipping point:

Cast Iron:	
1. No. 1 (Cupola) .....	\$49.00
2. No. 2 (Charging Box) ..	47.00
3. No. 3 (Hvy. Breakable) ..	45.00
4. No. 4 (Burnt Cast) .....	41.00
5. Cast Iron Brake Shoes ..	41.00
6. Stove Plate .....	46.00
7. Clean Auto Cast .....	52.00
8. Unstripped Motor Blocks ..	43.00
9. Wheels, No. 1 .....	47.00
10. Malleable .....	55.00
11. Drop Broken Machinery ..	52.00

## OPEN MARKET

(Delivered prices include broker's commission. Asterisk [\*] denotes nominal price.)

<b>Birmingham</b> (Delivered)	
No. 1 cupola cast .....	\$42.00
Stove plate .....	37.00
Charging box cast .....	39.00-40.00
Heavy breakable .....	36.00-37.00
Drop broken machinery ..	42.00-43.00
Unstripped motor blocks ..	35.00-36.00
<b>Boston</b> (F.o.b. shipping point)	
No. 1 cupola cast .....	36.00
Heavy breakable .....	30.00
Stove plate .....	30.00
Unstripped motor blocks ..	28.00
<b>Buffalo</b> (Delivered)	
No. 1 heavy melting ..	37.00*
No. 2 heavy melting ..	37.00*
No. 1 bundles .....	38.00*
No. 1 busheling .....	38.00*
No. 2 bundles .....	37.00*
Machine shop turnings ..	27.00*
Mixed borings, turnings ..	31.00*
Cast iron borings .....	31.00*
Short shoveling turnings ..	31.00*
No. 1 cupola cast .....	41.00-42.00*
No. 1 machinery cast ..	42.00-43.00*
<b>Chicago</b> (Delivered)	
No. 2 heavy melting ..	42.50
No. 2 bundles .....	42.50
Machine shop turnings ..	33.50
Mixed borings, turnings ..	37.50
Shoveling turnings ..	37.50
Cast iron borings .....	37.50
No. 1 cupola cast .....	43.00-47.00

Charging box cast .....	39.00-41.00
Heavy breakable .....	36.00-38.00
Burnt cast .....	36.00-38.00
Cast iron brake shoes ..	40.00-41.00
Stove plate .....	36.00-41.00
Clean auto cast .....	43.00-45.00
Unstripped motor blocks ..	33.00-35.00
Malleable .....	48.00-50.00
Drop broken machinery ..	45.00-50.00

Cleveland  
(Delivered)

No. 1 heavy melting ..	43.00
No. 2 heavy melting ..	43.00
No. 1 bundles .....	44.00
No. 2 bundles .....	43.00
Machine shop turnings ..	34.00
Mixed borings, turnings ..	29.00-30.00
Shoveling turnings ..	35.00
Cast iron borings .....	29.00-30.00
No. 1 cupola .....	49.00
Charging box cast .....	47.00
Burnt cast .....	45.00-46.00
Stove plate .....	45.00-46.00
Clean auto cast .....	48.00-49.00
Unstripped motor blocks ..	40.00-41.00
Malleable .....	51.00-52.00
Drop broken machinery ..	49.00-50.00

Detroit  
(Brokers' buying prices; f.o.b. shipping point)

No. 1 cupola cast .....	46.00-47.00
Heavy breakable .....	42.00-43.00
Clean auto cast .....	48.00-49.00
Unstripped motor blocks ..	39.00
Drop broken machinery ..	48.00-49.00
Charging box cast .....	45.00

New York  
(Brokers' buying prices; delivered to consumers' plants)

Cupola cast .....	38.00
Unstripped motor blocks ..	34.00

Philadelphia  
(Delivered)

No. 1 heavy melting ..	42.50
No. 2 heavy melting ..	41.00
No. 1 bundles .....	42.50
No. 2 bundles .....	41.00
No. 1 busheling .....	42.50
Mixed borings, turnings ..	34.50
Machine shop turnings ..	32.50
Short shoveling turnings ..	34.50
No. 1 cupola cast .....	49.00
Unstripped motor blocks ..	35.00
Heavy breakable .....	45.00
Machinery cast .....	52.00

† Ceiling price. ‡ Nominal.  
§ Shipping point.Pittsburgh  
(Delivered)

No. 2 heavy melting ..	44.00
No. 1 bundles .....	45.00
No. 2 bundles .....	44.00
Machine shop turnings ..	35.00
Shovel turnings .....	39.00
No. 1 cupola cast .....	4.00
Heavy breakable .....	1.00

† Ceiling price.

San Francisco  
(Delivered)

No. 2 bundles .....	34.00
No. 1 cupola cast .....	45.00

Seattle  
(F.o.b. shipping point)

No. 2 bundles .....	29.00
No. 1 cupola cast .....	39.00-40.00
Heavy breakable .....	35.00-40.00

St. Louis  
(Delivered)

No. 1 cupola .....	4.00
Stove plate .....	32.00
Unstripped motor blocks ..	32.00

Youngstown  
(Delivered)

No. 2 heavy melting ..	38.00-39.00
No. 2 bundles .....	38.00-39.00
Machine shop turnings ..	34.00

HAMILTON, ONT.  
(Delivered Prices)

Heavy Melt. ....	\$34.00
No. 1 Bundles .....	34.00
No. 2 Bundles .....	34.00
Mechanical Bundles ..	34.00
Mixed Steel Scrap .....	34.00
Mixed Borings, Turnings ..	34.00
Rails, Remelting .....	34.00
Rails, Rerolling .....	34.00
Busheling .....	29.00
Bushelings new factory: Prep'd .....	38.00
Unprep'd .....	38.00
Short Steel Turnings ..	32.00
Cast Iron Grades† ..	52.00
No. 1 Machinery Cast ..	52.00

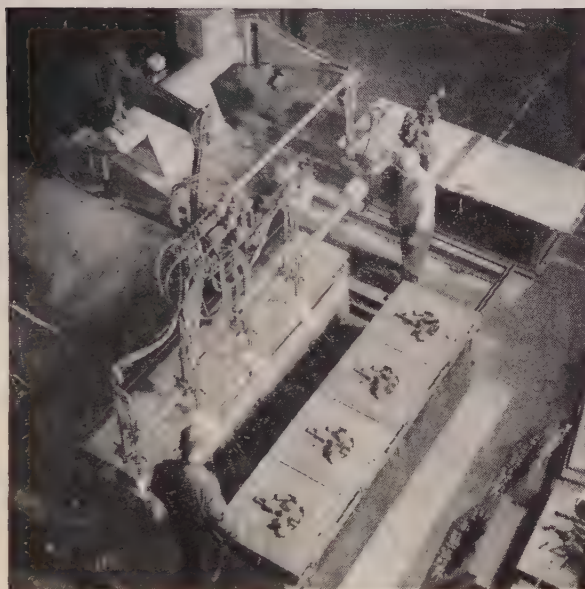
† F.O.B. shipping point.



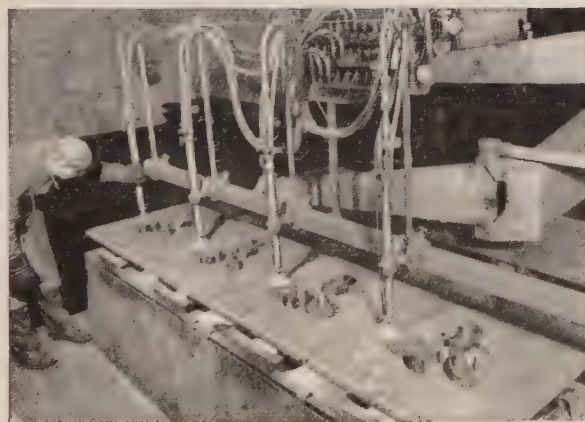
# 64 sprockets per day



## AIRCO FOUR-TORCH TRAVOGRAPH CUTS FINISHED SPROCKETS!



The No. 50 Travograph in action. Inner circle and straight line cuts are done on rear table. The Electronic Tracer guides the arm movements automatically by following a low-cost outline drawing.



Outside pattern cut in progress on front table. Smooth, sharp-edged cuts make finish grinding unnecessary.

How to turn out tank sprockets to fit defense demands was quickly solved by the Otis Elevator Company. Installation of an electronically-guided Airco No. 50 Travograph Gas Cutting Machine in their Yonkers, New York plant was the answer.

Located next to the steel plate delivery entrance, Otis workers make quick work set-ups on their No. 50 Travograph, set a low-cost outline drawing under the Travograph's electronic tracer, and let the pantagraph arms guide the torches to work completion.

Torches are equipped with solenoid valves, operated by means of remote control switch which shuts gas off at work completion preventing contour-destroying notches . . . losing only torch gas — keeping hose lines full and instantly ready for next operation.

For your next production-run, large-parts job, where a machine-free finish is required on parts of any shape, it will pay you to consider the No. 50 Travograph. Whether you're cutting from plates, slabs, billets, or forgings, here is a precision machine that will cut identical parts on a profitable, quantity-production basis.

To obtain details about the Airco No. 50 Travograph for your operations, contact your nearest Airco office. Or just write and ask for Catalog 7, The No. 50 Travograph Gas Cutting Machine. Address: Advertising Department, 60 East 42nd Street, New York 17, New York.

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PRINCIPAL CITIES

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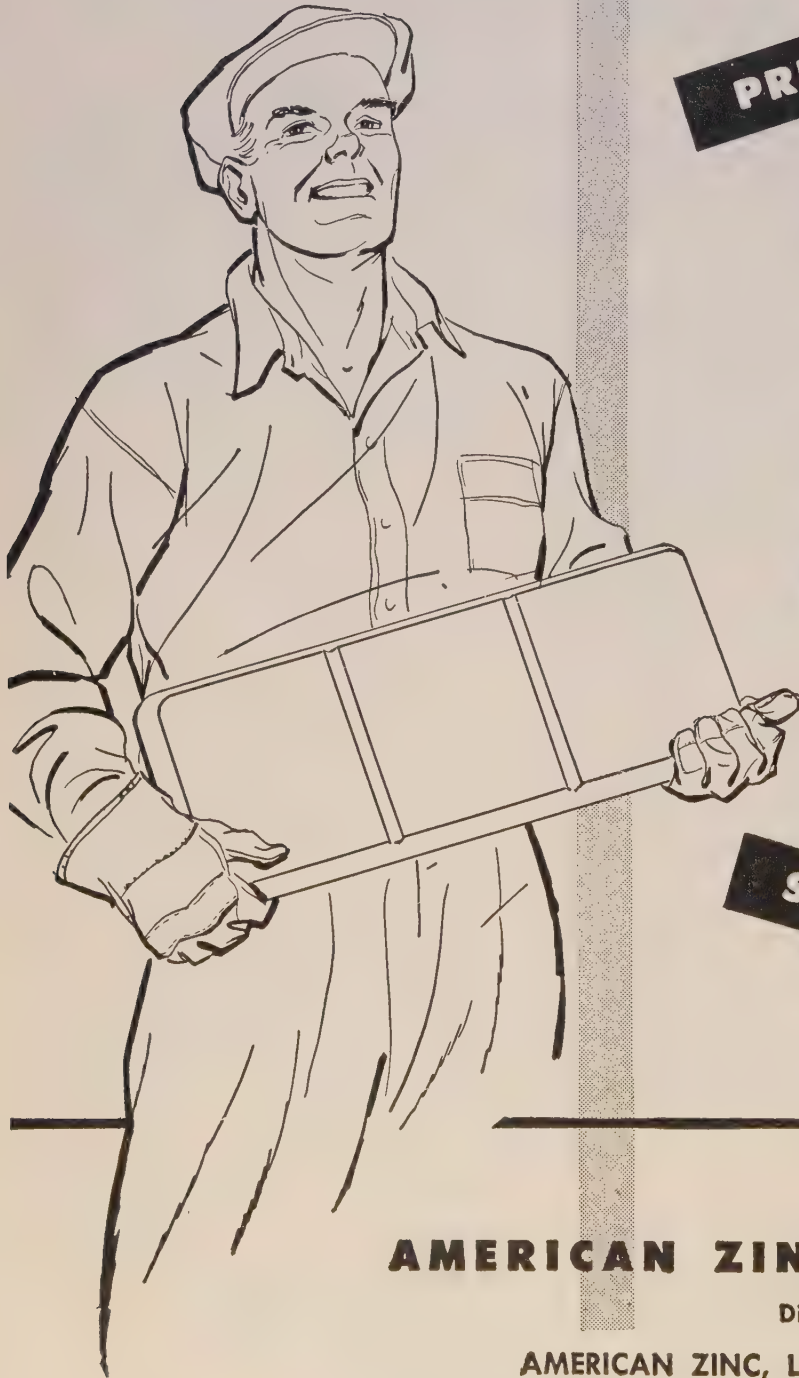


every grade of ZINC

for urgent military and

civilian requirements

# SLAB ZINC



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**AMERICAN ZINC SALES COMPANY**

Distributors for

**AMERICAN ZINC, LEAD & SMELTING COMPANY**

Columbus, O.

Chicago

St. Louis

New York



# The Metal Market



## Canadian Titanium Due for a Treatment

A panoramic view shows the facilities at the Quebec Iron & Titanium Corp. treatment plant at Sorel, Que., 50 miles east of Montreal. The main furnace building, housing five electric furnaces, is in the center.

Facilities for crushing, stocking and handling of slag for railroad or wharf for outgoing shipment are under construction. The company is owned jointly by Kennecott Copper Corp. and the New Jersey Zinc Co.

## Pressure for higher prices in copper and aluminum industries mounts following settlement of steel strike. Zinc users place heavier orders

IN THE WAKE of the steel wage-price agreement comes that inevitable inflationary pressure on all metals. Supplanting threats of lost production is necessity to seek higher prices for many basic metals as punctured labor contracts are patched with wage raises.

Specter of strike losses isn't completely erased though. It still hangs over western copper mines and smelters. Bitterness in brass mill strikes has reached new highs of intensity, with no agreement in sight.

**Unrest in Copper**—Mine, Mill and Smelter Workers Union has kept copper miners at work since contracts expired, most of them at the end of June. The union will start agitating in earnest now that the steel settlement has provided ammunition and a wage target.

Copper companies say the steelworkers are just catching up to copper workers and no major wage raises are in order, but the union doesn't see it that way.

**Aluminum Going Up**—A price rise in aluminum is certain; only the amount is in doubt. Producers of fabricated aluminum products want ceilings on their output raised percentagewise as much as or more than any raw aluminum increase allowed.

**Zinc Disappoints**—No tidal wave of new orders hit zinc producers with the end of the steel strike. Volume

was heavy, but most of it resulted from requests for shipment of prime western ordered for June shipment. When galvanizers set up firm production schedules, the zinc market should settle down a bit.

Strike's end came at a time when most producers were stocked to the rafters with unsold zinc. Stocks on hand going into August probably reached the 100,000-ton level. A note of optimism for special high grade stems from healthier orders from die casters. Brass mill orders remain low because of the strike.

## Copper Restrictions Eased

Restrictions on use of copper in building materials is being revoked and an increase in self-allotments of copper and aluminum to all classes of construction, except amusement and recreation, is being ordered.

## Brass Ingot Market Firms

Brass and copper ingot suppliers are pegging their output at ceiling again, but not because of a demand pickup. It's just that the scrap market is so tight and their supplies have dwindled. All grades of copper and brass scrap have firmed noticeably in the past few weeks. High priced foreign copper is coming into the market as scrap, and will account for a

higher percentage when industry hits full production. Few people are holding back copper scrap, though with inventory restrictions now off all non-ferrous scrap, there may be some hoarding of higher grades in belief that price ceilings will be revised upwards in the fall.

After a month of study, OPS finally saw the light and freed from price control foreign copper concentrates bought at world prices and pegged at old ceilings. Nearly 6000 tons of refined foreign copper will thus go on the market from custom smelters for August delivery. This metal has been priced at 36.37½c, f.o.b. eastern refinery. Sellers of Chilean copper at the delivered valley price of 36.50c are eating into accumulated stocks as current sales exceed incoming supplies.

### STEEL'S Metal Price Averages for July, 1952 (Cents per pound)

Electrolytic Copper, del.	
Conn. ....	24.500
Lead, St. Louis ....	15.800
Prime Western, Zinc,	
E. St. Louis ....	15.000
Straits Tin, New York ..	121.50
Primary Aluminum	
Ingots, del. ....	19.000
Antimony, f.o.b. Laredo,	
Tex. ....	39.000
Nickel, f.o.b. refinery ..	56.500
Silver, New York .....	82.885



## NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

## Primary Metals

**Copper:** Electrolytic 24.50c, Conn. Valley; Lake 24.62½c, delivered.**Brass Ingots:** 85-5-5-5 (No. 115) 27.25c, 88-10-2 (No. 215) 40.00c; 80-10-10 (No. 305) 33.00c; No. 1 yellow (No. 405) 23.25c.**Zinc:** Prime western 15.00c; brass special 15.25c; intermediate 15.50c, East St. Louis; high grade 16.35c, delivered.**Lead:** Common 15.80c; chemical 15.90c; cor-rod ing 15.90c, St. Louis.**Primary Aluminum:** 99% plus, ingots 19.00c, pigs 18.00c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.i. orders.**Secondary Aluminum:** Piston alloys 19.50c; No. 12 foundry alloy (No. 2 grade) 18.50c; steel deoxidizing grades, notch bars, granulated or shot; Grade 1, 18.80c; grade 2, 18.60c; grade 3, 17.40c; grade 4, 17.20c.**Magnesium:** Commercially pure (99.8%) stand-ard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.**Tin:** Grade A, prompt 121.50c.**Antimony:** American 99-99.8% and over but not meeting specifications below 39.00c; 99.8% and over (arsenic 0.05% max., other impuri-ties 0.1% max.) 39.50c; f.o.b. Laredo, Tex., for bulk shipments.**Nickel:** Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 56.50c; 25-lb pigs, 59.15c; "XX" nickel shot, 60.15c; "F" nickel shot or ingots, for addition to cast iron, 56.50c. Prices include import duty.**Mercury:** Open market, spot, New York, \$188-191 per 76-lb flask.**Beryllium-Copper:** 3.75-4.25% Be, \$1.56 per lb of alloy, f.o.b. Reading, Pa.**Cadmium:** "Regular" straight or flat forms, \$2.00 del; special or patented shapes \$2.40.**Cobalt:** 97.99%, \$2.40 per lb for 500 lb (kegs); \$2.42 per lb for 100 lb (case); \$2.47 per lb under 100 lb.**Gold:** U. S. Treasury, \$35 per ounce.**Silver:** Open market, New York 83.25c per oz.**Platinum:** \$90-\$93 per ounce from refineries.**Palladium:** \$24 per troy ounce.**Iridium:** \$200 per troy ounce.**Titanium** (sponge form): \$5 per pound.

## Rolled, Drawn, Extruded Products

## COPPER AND BRASS

(Ceiling prices, cents per pound, f.o.b. mill, effective July 1, 1952)

**Sheet:** Copper 45.52; yellow brass 40.17; com-mercial bronze, 95% 45.15; 90% 44.38; red brass, 85% 43.10; 80% 42.34; best quality, 41.35; nickel silver, 18%, 55.08; phosphor-bronze grade A, 5%, 64.71.**Rod:** Copper, hot-rolled 41.37; cold-drawn 42.62; yellow brass free cutting, 33.85; com-mercial bronze 95%, 44.84; 90% 44.07; red brass 85%, 42.79; 80%, 42.03.**Seamless Tubing:** Copper 45.56; yellow brass 43.18; commercial bronze, 90%, 47.04; red brass, 85%, 46.01.**Wire:** Yellow brass 40.46; commercial bronze, 95%, 45.44; 90%, 44.67; red brass, 85%, 43.39; 80%, 42.63; best quality brass, 41.64.

(Base prices, effective July 1, 1952)

**Copper Wire:** Bare, soft, f.o.b. eastern mills, 100,000 lb lots, 32.795; 30,000 lb lots, 32.92; l.c.l., 33.42. Weatherproof, 100,000 lb, 33.60; 30,000 lb, 33.85; l.c.l., 34.35. Magnet wire del., 15,000 lb or more, 38.75; l.c.l., 39.50.

## DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Alu-minum	An-timony	Nickel	Silver
1952								
July 24-31	24.50	15.80	15.00	121.50	19.00	39.00	56.50	83.25
July 1-23	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.75
June 24-30	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.75
June 23	24.50	15.30	15.00	121.50	19.00	39.00	56.50	82.75
June 18-21	24.50	14.80	15.00	121.50	19.00	39.00	56.50	82.75
July Avg.	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.885
June Avg.	24.50	15.06	15.74	121.50	19.00	39.00	56.50	82.75
May Avg.	24.50	15.519	19.50	121.50	19.00	42.077	56.50	85.356
Apr. Avg.	24.50	18.723	19.50	121.50	19.00	49.077	56.50	88.00
Mar. Avg.	24.50	18.80	19.50	121.50	19.00	50.00	56.50	88.00
Feb. Avg.	24.50	18.80	19.50	121.50	19.00	50.00	56.50	88.00
Jan. Avg.	24.50	18.80	19.50	109.404	19.00	50.00	56.50	88.00

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del.; Antimony, bulk, f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

## ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.i. orders)

Sheets and Circles: 2s and 3s mill finish c.i.

Thickness Range Inches	Widths or Diameters, In., Inc.	Flat Sheet Base*	Coiled Sheet Base	Sheet Circle† Base
0.249-0.136	12-48	30.1	...	...
0.135-0.096	12-48	30.6	...	...
0.095-0.077	12-48	31.2	29.1	33.2
0.076-0.061	12-48	31.8	29.3	33.4
0.060-0.048	12-48	32.1	29.5	33.7
0.047-0.038	12-48	32.5	29.8	34.0
0.037-0.030	12-48	32.9	30.2	34.6
0.029-0.024	12-48	33.4	30.5	35.0
0.023-0.019	12-36	34.0	31.1	35.7
0.018-0.017	12-36	34.7	31.7	36.6
0.016-0.015	12-36	35.5	32.4	37.6
0.014	12-24	36.5	33.3	38.9
0.013-0.012	12-24	37.4	34.0	39.7
0.011	12-24	38.4	35.0	41.2
0.010-0.0095	12-24	39.4	36.1	42.7
0.009-0.0085	12-24	40.6	37.2	44.4
0.008-0.0075	12-24	41.9	38.4	46.1
0.007	12-18	43.3	39.7	48.2
0.006	12-18	44.8	41.0	52.8

\* Lengths 72 to 180 inches. † Maximum di-  
ameter, 26 inches.

Screw Machine Stock: 5000 lb and over.

Dia. (in.) or distance across flats	—Round—		—Hexagonal—	
	R317-T4	17S-T4	R-317-T4	17S-T4
0.125	52.0	...	...	...
0.156-0.0188	44.0	...	...	...
0.219-0.313	41.5	...	...	...
0.375	40.0	46.0	48.0	...
0.406	40.0	...	...	...
0.438	40.0	46.0	48.0	...
0.469	40.0	...	...	...
0.500	40.0	46.0	48.0	...
0.531	40.0	...	...	...
0.563	40.0	...	...	45.0
0.594	40.0	...	...	...
0.625	40.0	43.5	45.0	...
0.688	40.0	...	...	...
0.750-1.000	39.0	41.0	42.5	...
1.063	39.0	...	41.0	...
1.125-1.500	37.5	39.5	41.0	...
1.563	37.0	...	...	...
1.625	36.5	...	39.5	...
1.688-2.000	36.5	...	...	...

## LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more \$21.00 per cwt; add 50c cwt 10 sq ft to 140 sq ft. Pipe: Full coils \$21.00 per cwt. Traps and bends: List prices plus 50%.

## ZINC

Sheets 23.00c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 21.25c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 22.50c; over 12-in., 22.50-23.00c.

## "A" NICKEL

(Base prices f.o.b. mill)

Sheets, cold-rolled, 77.00c. Strip, cold-rolled, 83.00c. Rods and shapes, 73.00c. Plates, 75.00c. Seamless tubes, 106.00c.

## MONEL

(Base prices f.o.b. mill)

Sheets, cold-rolled 60.50c. Strip, cold-rolled 63.50c. Rods and shapes, 58.50c. Plates, 59.50c. Seamless tubes, 93.50c. Shot and blocks, 53.50c.

## MAGNESIUM

Extruded Rounds 12 in. long, 1.31 in. in di-  
ameter, less than 25 lb, 55.00-62.00c; 25 to  
99 lb, 45.00-52.00c; 100 lb to 5000 lb, 41.00c.

## TITANIUM

(Prices per lb 10,000 lb and over, f.o.b. mill)  
Sheets, \$15; sheared mill plate, \$12; strip,  
\$15; wire, \$10; forgings, \$6; hot-rolled and  
forged bars, \$6.

## Plating Materials

**Chromic Acid:** 99.9% flakes, f.o.b. Philadel-  
phia, carloads, 28.00c; 5 tons and over 28.50c;  
1 to 5 tons, 29.00c; less than 1 ton 29.50c.**Copper Anodes:** Base 2000 to 5000 lb; f.o.b. ship-  
ping point, freight allowed: Flat, rolled, 38.34c; oval 37.84c.**Nickel Anodes:** Rolled oval, carbonized, car-  
loads, 74.50c; 10,000 to 30,000 lb 75.50c; 30,000  
to 10,000 lb 76.50c; 500 to 3000 lb 77.50c;  
100 to 500 lb, 79.50c; under 100 lb, 82.50c;  
f.o.b. Cleveland.**Nickel Chloride:** 36.50c in 100 lb bags; 34.50c  
in lots of 400 lb through 10,000 lb; 34.00c  
over 10,000 lb, f.o.b. Cleveland, freight al-  
lowed on 400 lb or more.**Sodium Stannate:** 25 lb cans only, less than  
100 lb to consumers 86.7c; 100 or 350 lb  
drums only, 100 to 600 lb 71.60c; 700 to 1900  
lb, 69c; 2000 to 9900 lb, 67.3c. Freight al-  
lowed east of Mississippi and north of Ohio  
and Potomac rivers.**Tin Anodes:** Bar, 1000 lb and over, \$1.375; 500  
to 999 lb, \$1.38; 200 to 499 lb, \$1.385; less  
than 200 lb, \$1.40. Freight allowed east of  
Mississippi and north of Ohio and Potomac.**Zinc Cyanide:** 100 lb drums, less than 10  
drums 54.30c, 10 or more drums, 52.30c, f.o.b.  
Niagara Falls, N. Y.**Stannous Sulphate:** 100 lb kegs or 400 lb bbls  
less than 2000 lb \$1.11; more than 2000 lb  
\$1.09. Freight allowed east of Mississippi and  
north of Ohio and Potomac rivers.**Stannous Chloride (Anhydrous):** In 400 lb bbls  
98.5c; 100 lb kegs 99.5c. Freight allowed.

## Scrap Metals

## Brass Mill Allowances

Ceiling prices in cents per pound for less than  
20,000 lb, f.o.b. shipping point, effective June  
26, 1951.

	Clean	Rod	Clean
	Heavy	Ends	Turnings
Copper	21.50	21.50	20.75
Yellow Brass	19.125	18.875	17.875

## Commercial Bronze

95%	20.50	20.25	19.75
90%	20.50	20.25	19.75

## Red Brass

85%	20.25	20.00	19.375
80%	20.125	19.875	19.375

Muntz metal 18.125 17.875 17.375

Nickel silver, 10% 21.50 21.25 10.75

Phos. Bronze, 5% 25.25 25.00 24.00

## Copper Scrap Ceiling Prices

(Base prices, cents per pound, less than  
40,000 lb f.o.b. point of shipment)Group I: No. 1 copper 19.25; No. 2 copper  
wire and mixed heavy 17.75; light copper  
16.50; No. 1 borings 19.25; No. 2 borings  
17.75; refinery brass, 17.00 per lb of dry C  
content for 50 to 60 per cent material and  
17.25 per lb for over 60 per cent material.Group II: No. 1 soft red brass solids 18.50  
No. 1 composition borings 19.25 per lb of C  
content plus 63 cents per lb of tin contents  
mixed brass borings 19.25 per pound of C  
content plus 60 cents per lb of tin contents  
unlined red car boxes 18.25; lined red car  
boxes 17.25; cocks and faucets 16.00; mixed  
brass screens 16.00; zincy bronze solids and  
borings 16.25.

## Aluminum Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment,  
less than 5000 lb)Segregated plant scrap: 2s solids, copper free  
10.50; high grade borings and turnings, 8.50  
No. 12 piston borings and turnings, 7.50  
Mixed plant scrap: Copper-free solids, 10.00  
dural type, 9.00. Obsolete scrap: Pure oil  
cable, 10.00; sheet and sheet utensils, 7.25; oil  
castings and forgings, 7.75; clean pistons, free  
of struts, 7.75; pistons with struts, 5.75.

## DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Lead: Heavy 12.00-12.25; battery plates 7.00-  
7.50; linotype and stereotype 13.50-14.00; elec-  
trotype 12.00-12.50; mixed babbitt 14.50-14.75Zinc: Old zinc, 6.00-6.50; new die cast scrap  
6.00-6.50; old die cast scrap, 5.00-5.50.



## Semifinished Steel . . .

Semifinished Prices, Page 167

**Chicago**—Interest in conversion steel continues considerable, bulk of this coming from automobile makers and parts manufacturers. More such business appears likely now the strike is over and ingots for conversion can be produced. One steel mill here, which in the past has been an important converter and which now has its capacity for such rolling booked solid for more than 60 days, was able to reactivate its finishing mills more speedily than would normally be possible because of conversion ingots on hand for processing.

**Los Angeles**—Six struck western steel mills lost 656,440 tons of ingots during the work stoppage, approximately 11 per cent of their annual rated capacity.

**San Francisco**—Columbia-Geneva Division, U. S. Steel Co., estimates it lost more than 350,000 tons of ingot production as a result of the shutdown. Bethlehem Pacific Coast Steel Corp. figures the loss at its three plants aggregated 126,500 tons.

## Sheets, Strip . . .

Sheet and Strip Prices, Page 167 & 168

**Cleveland**—Pending clarification of government shipment regulations with respect to third and fourth quarter steel production, the sheet mills are, for the most part, marking time. They are being swamped with calls from customers anxious to learn just what disposition will be made of orders on mill books. The best the mills can tell them is that tonnage will be handled in accordance with any regulations issued by the government. In any event, civilian goods manufacturers will have to stand aside until such time as urgent military and other defense needs are cared for. With a large part of third quarter output lost because of the strike the mills will be unable to book much tonnage for fourth quarter since output in the period will be taken up in caring for the third quarter carryover. Full production of sheets is not expected to be achieved for a couple weeks.

**Boston**—Sheet metal shops are not expected to be able to step up operations materially for at least three weeks and a much longer period will elapse before 30-day inventories will be accumulated.

**New York**—Although sheets were an easiest supply of all major products prior to the strike, consumers will find the going tough over the remainder of the year in obtaining the tonnage they desire. Fact is, most will not be able to get near as much as they want.

**Philadelphia**—Among eastern sheet producers, the Rustless Division, Armco Steel Corp., producer of stainless sheets and other stainless products, is getting off to a slow start because of delay in reaching strike settlement on some minor questions under dispute.

**Pittsburgh**—Settlement of the steel strike will mean little immediate improvement in the supply of sheets. To what extent fourth quarter tonnage has been affected will be

The driven gear shown here is  
5" in pitch diameter and  
15" long overall.

It is carburized and hardened  
with heat-treating distortion held within .001".



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problematical until full production is achieved. Also clouding the picture are expected additional directives allocating fourth quarter tonnage. First shipments will be earmarked for the military.

**Chicago**—Sheets, both hot and cold rolled, are destined to be among the tightest products. Orders on mill books coupled with sizable carryovers almost certainly preclude acceptance of any new business for balance of the year. Opening of books for fourth quarter will be a mere formality.

**Los Angeles**—Sheetmakers' books are snarled up by the loss of tonnage during the strike. Orders scheduled for July delivery have been moved into September.

## Tin Plate . . .

Tin Plate Prices, Page 168

**Cleveland**—Tin mills will place emphasis on plate for the food pack now that the strike has ended and production is getting under way. However, it will be at least a couple weeks before output of the mills will be restored to prestrike levels. Meanwhile, under government regulations manufacturers of cans and closures can only get delivery of tin plate if they certify the steel will be used for cans for the perishable food pack.

**Pittsburgh**—Tin plate on hand at mills that couldn't be shipped during the strike is moving out as fast as possible to alleviate the serious shortage in the canning industry. So great is the urgency, much of it is being shipped to the West Coast via express. Mills have started finishing

operations, but probably won't be in full production for several weeks.

**San Francisco**—Termination of the steel strike has dispelled the feeling of gloom which had permeated California's fruit and vegetable packing industry. Tin plate is expected to be rolling again soon in sufficient quantity to assure containers for all of the state's major packs.

## Steel Bars . . .

Bar Prices, Page 167

**New York**—Hot carbon bar consumers believe it will be several weeks before they will be able to get stocks back in balance. Much will depend upon rules the government puts into effect with regard to post-strike distribution. However, the rank and file of consumers believe that producers will not get back into full operation for at least three weeks, possibly longer, and that no little of their early tonnage will be moved against high rated defense orders.

**Philadelphia**—To ease stringency in hot bars as well as other carbon products, inventories will be limited to 30 days, instead of the recent 45 day maximum. The stringency in bars over coming months will be perhaps the most pronounced of all major products.

**Boston**—Bar orders for military requirements have piled up and for some weeks bulk of distribution will be by directives covering this tonnage. Inventories with non-defense

consumers are low.

**Cleveland**—Tight supply conditions in bars are indicated through first quarter of next year at least. With more than two months production lost as result of the recent labor trouble, output over the remainder of the year likely will be taken up in caring for carryover orders from second and third quarters. Except for deliveries it is expected little new tonnage will be accepted for fourth quarter. While yet to be officially announced, expectations in the trade are that bar prices will rise on the average about \$5 per ton.

**Pittsburgh**—Production at a reduced rate for August while mills resume operation will heighten damage done to steel bar availability by the steel strike. No new orders will go on the books for the remainder of the year other than by directives from the government.

**Chicago**—Bars are one of the products figuring heavily in conversion thinking these days. Shortages on both hot-rolled and cold-drawn are seen for some time to come. Cold finishers are again receiving shipments from mills but on a restricted basis.

## Steel Export Prices Rise

**New York**—United States Steel Export Co. is increasing prices on carbon, alloy and stainless steel products, retroactive to July 26. Material will be invoiced at the new prices when the authorized increase in ceiling prices for individual products is established.

## Plates . . .

Plate Prices, Page 167

**Philadelphia**—Strike-bound plate mills are getting under way. However, one producer getting off to a late start, is Lukens Steel Co., Coatesville, Pa., settlement having been held up by questions relating to seniority rights and incentive pay. Further, two of the company's mills will not be put immediately into operation. The 112-in. mill will be down for two weeks from the time of the strike settlement for repairs and the 120-in. mill will be down four to five weeks. There will be a delay, however, in resumption of work on the 140-in. and 206-in. mills.

**Boston**—Heavy wide plates will be in short supply through balance of this year and most shipments against old and new orders will be by directive for some weeks.

**New York**—Second perhaps to carbon bars, among the major products plates will be in greatest stringency over remainder of the year. The largest producers, which had been strike-bound, will have nothing to offer in the way of new tonnage against ordinary ratings before next year.

**New York**—American Locomotive Co. received a \$200 million contract from the government for T-48 Army tanks and spare parts. The tanks will be coming off the assembly line at the company's Schenectady, N. Y. plant in the first half of 1953.

**Pittsburgh**—First to receive delivery on plates will be those fabric-

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ors whose orders were in process at the time of the strike, there being no directives up to last midweek that might affect fulfillment. Picture is bleak for new tonnage.

**Los Angeles**—Fabricators are feeling most the strike-caused pinch in plates. At strike's end plate shops were working on the last of their stocks.

## Wire . . .

Wire Prices, Page 169

**Cleveland**—Wire mills in this district are expected back in full operation by the beginning of this week. Virtually all employees of American Steel & Wire Division plants here left U.S. Steel Co. were back on the job by last midweek. Shipments to consumers will be attuned to government regulations with military and related needs getting preference.

**Boston**—Wire mills are in process of adjusting prices upward, a complicated problem with hundreds of items and grades involved. Not until this week will the price structure be clarified. Although most mills have resumed operation, shortage of raw materials endangers capacity operations with some, scrap excepted.

## Structural Shapes . . .

Structural Shape Prices, Page 167

**New York**—Most fabricating shops will require a few weeks to get back to normal operation. Certain shops may have to suspend operations completely before the tide in mill shipments reaches normal.

June fabricated structural steel bookings according to the American Institute of Steel Construction, were 167,492 tons, decrease of 20 per cent from the previous month. Total bookings for the first half of the year were 1,256,823 tons, monthly average of 209,470 tons. This combination took into account revised figures for May and April, which were 209,888 tons and 209,106 tons, respectively.

Reflecting the steel strike, June shipments fell sharply to 125,486 tons. Shipments for the first six months totaled 1,360,563 tons, slightly less than the 1,370,372 tons shipped in the corresponding period of 1951. Shipments for May and April were revised to 144,222 tons and 230,670 tons, respectively.

Order backlog as of June 30 stood at 2,261,503 tons.

**Philadelphia**—Most units of the two leading fabricators are able to resume shipments promptly by virtue of the fact they were strike-bound from the beginning of the walkout in the steel industry. There may be some lag pending an adequate flow of tonnage from the shape mills, but, in general, these units are in good position. On the other hand, some medium and small fabricators, which operated throughout the strike, have practically used up their inventories and are confronted with a complete suspension until stocks can be built up.

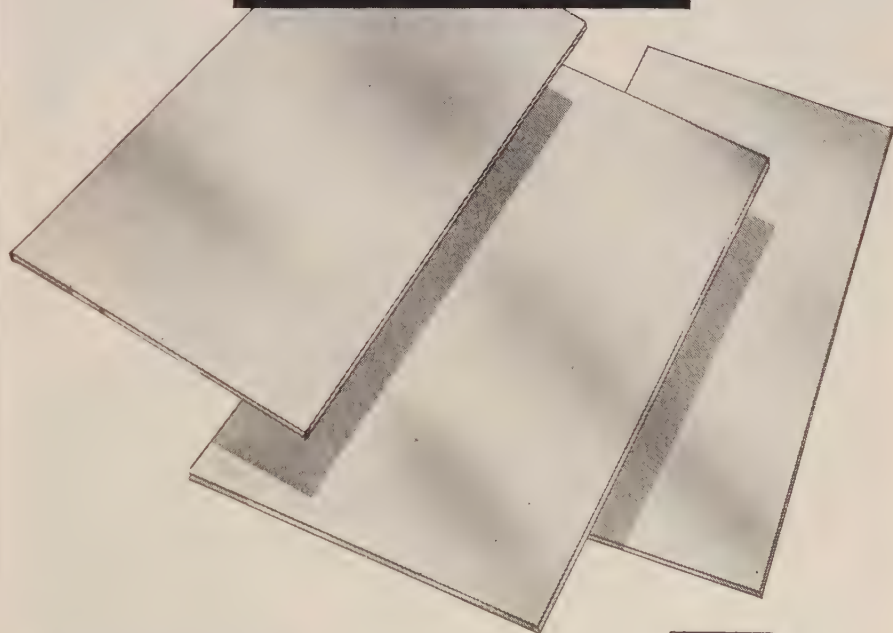
**Boston**—Structural mills resume rolling two to three months behind

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schedule. Bulk of fourth quarter tonnage will be against third quarter allotments with some second quarter volume involved. Most of the latter will be shipped by September.

**Pittsburgh**—Structural shapes are in tighter supply, with little relief in sight even though the steel strike is settled. No new orders will be accepted unless by directive.

## Tubular Goods . . .

Tubular Goods Prices, Page 171

**Boston**—That pipe will be in short supply for new heating installations and other requirements normally filled by distributors is indicated by low warehouse stocks. Although most took up earlier allotments, the drain on stocks has been steady, and replacements during the next few months will be curtailed. Several tubular mills expect to reduce fourth quarter allotments to one month.

**Los Angeles**—Steel strike has not tapered pipeline projects. West Coast Pipeline Co.'s 953-mile crude oil pipeline from West Texas to Norwalk, Calif., was approved by PAD. Consolidated Western Steel Co., Kaiser Steel Corp., and A. O. Smith Corp. will furnish the pipe for the \$79.5 million to \$105.7 million project.

**San Francisco**—A \$101,000,000, 24-in. pipeline, stretching 953 miles from Wink, Tex., to Norwalk, Calif., is expected to be under construction in a few months. Kaiser Steel Corp., Fontana, Calif., and Consolidated Western Steel Division, U. S. Steel Co., will participate in the orders.

## Pig Iron . . .

Pig Iron Prices, Page 166

**Philadelphia**—Due to the new ruling limiting pig iron inventories to 30 days instead of 60, there have been some cancellations of orders for foundry iron. Despite loss of much iron production because of the 55-day steel strike, a number of gray iron foundries had been able to maintain good inventories due to restricted operations. In the case of basic consumers, however, the situation is different with current demand pressing. Pig iron producers are incorporating protective clauses in billings in anticipation of an early price advance. There is some talk there may be an increase of \$2 a ton or so.

**Cleveland**—With blast furnaces getting back into production indications are pig iron will be flowing in prestrike volume within the next week or so. Emptied supply pipelines will place the market under demand pressure for a time. But with inventory regulations restricting stocks to 30 days the scramble for tonnage is not expected to be as hectic as it was during the period of acute shortage a year ago. Noticeable pickup in foundry operations currently reflects completion of vacation shutdowns at many plants.

**Chicago**—End of the strike found several jobbing foundries closed from a combination of circumstances including pig iron stock depletion and lack of business. Blast furnace operations and iron output are expected to be normal in August.

**Boston**—Basic iron is in short supply with a price increase in the offing. Some consumers expect little tonnage from regular suppliers in the near future and may be forced to buy foreign iron at higher prices.

**New York**—This week will probably see most eastern blast furnaces back in operation. Most lighter their fires early last week, but time is required to get the melt up to desired standard. Anticipating stringency in supply for some time, Washington has limited consumer inventories to 30 days.

## Iron Ore . . .

Iron Ore Prices, Page 173

**San Francisco**—Stockton Port District has spent \$400,000 on ore-loading docks in the Stockton channel, San Francisco bay. The facilities are designed to load 800 tons of ore hourly into ocean going vessels.

## Scrap . . .

Scrap Prices, Page 174

**Philadelphia**—Practically all major open-hearth and low-phos grades of scrap are back to ceiling levels. Mixed borings and turnings and shoveling turnings are momentarily nominal, although old orders have been released by consumers carrying the ceiling prices. Machine shop turnings rose to \$32.50, shipping point, the ceiling on this grade, on the basis of sales to the Navy and government arsenals.

Cast grades continue to show strength. Heavy breakable is now \$45; machinery cast, \$52; No. 1 cupola cast, \$49, all ceilings. Unstripped motor block prices are tending upward.

**Boston**—Heavy melting steel has firmed up to ceiling on limited volume, new buying being retarded by backed up loaded cars in consumer yards. Borings and turnings are not reflecting this stronger tone while cast grades move slowly and well below ceilings. Dealers are slowing down purchases of cast. No. 1 cupola is generally \$36 shipping point, and mixed cast \$34.

**New York**—Effective Aug. 2, a dealer may use ceiling shipping point prices established for New York city, when the scrap originates at his yard in that city, even though he may use a rail point located outside. If such rail point is the closest one to his yard. This ruling by OPS will enable such dealers to effectively compete in the New York city area.

**Buffalo**—Scrap prices continue weak as an estimated 100,000 tons have to be handled before consumers accept dealers' accumulated stocks. As a result, dealers confront an indefinite embargo on shipments to mills. Several hundred railroad cars averaging 40 tons per car were backed up in yards during the strike. Large quantities, at least 15,000 tons are stored along the waterfront. Dealers still hold contracts for substantial tonnages placed before the strike at ceiling prices. New buying is nil and prices are nominally unchanged in the open market at \$6 to \$6 per ton below ceilings.

**Pittsburgh**—Scrap market situation



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is tightening. Although mills have a good supply on track and in yards which might be expected to keep prices down, it is possible to obtain only small quantities under ceiling. Reason is advanced that dealers are going to angle to get an increase.

**Cleveland** — Definitely stronger price tone prevails in the scrap market. Little new material is coming to dealers as result of the curtailment of operations in many manufacturing plants. At the same time most of the leading mills in this and adjacent areas have placed new purchase orders at ceiling levels. Deliveries on these new tonnage orders will begin just as soon as the mills are able to clear tracks of accumulated tonnage. Cast grades are stronger with No. 1 cupola and other prime foundry grades again moving at ceiling.

**Detroit**—Pressure on dealers' scrap mounted with resumption of operations by Great Lakes Steel Corp. Very little industry scrap for direct shipment will be generated until auto plants get back in production. No steelmaking grades are available at less than ceiling. Cast grades are in heavier demand with resumption of some captive foundries, but some items are still obtainable at less than ceiling.

## Warehouse . . .

Warehouse Prices, Page 173

**Washington**—With steel inventories lowest since start of the defense program NPA is taking steps to assure distributors replenishment of depleted stocks through Direction 3 to NPA order M-6-A, issued July 28.

Starting August, mills must ship to warehouses 120 per cent of their base period tonnage, increase of 20 per cent over previous minimum shipments. Restrictions in the regulation may reduce shipments in some instances below the 120 per cent minimum, however.

For example, a producer may cancel a warehouse order for any product in excess of such distributor's base tonnage if the total of such product orders from distributors, further converters and others placing authorized controlled material orders A, B, C or E and a digit, or Z-2, or allotment symbols accompanied with the suffix B-5, exceeds 50 per cent of producers' planned production for the month specified.

Warehouses may restrict deliveries to customers during any one week to 4000 pounds of carbon steel, 2500 pounds of alloy steel, 1000 pounds of stainless steel, 500 pounds of stainless bars and plates, and 500 pounds of stainless tubing and pipe.

Also, under the emergency regulations, warehouse inventories of hot-rolled bars, cold-finished bars, electrical sheet and strip, structural shapes, pressure tubing, mechanical tubing, sheared plate and hot and cold-rolled sheet and strip are frozen until Aug. 7. Deliveries may be made during the freeze only against authorized controlled material orders for the military and machine tool builders carrying allotment symbols A, B, C or E or Z-2 or B-5.

**Cleveland**—Warehouse steel distributors are uncertain just what policy to adopt with respect to shipments

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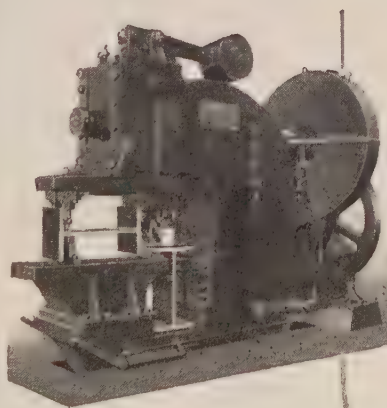
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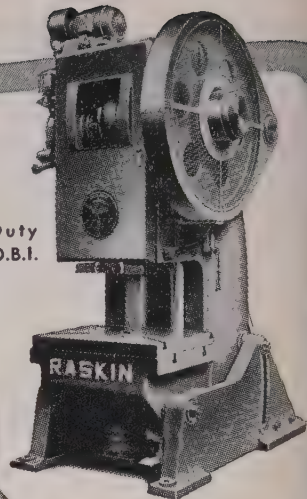
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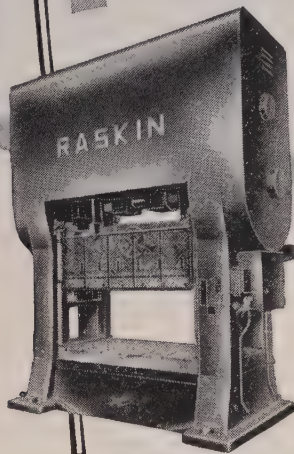
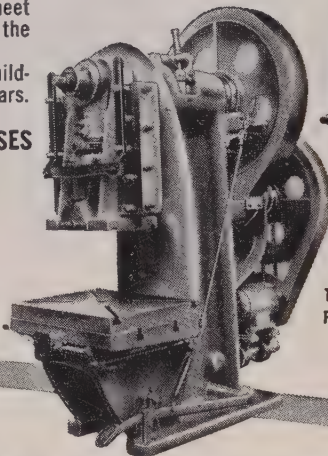
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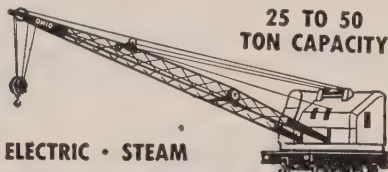
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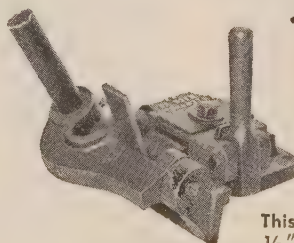
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ver immediate future weeks. With the mills resuming production they are encouraged by word they will receive a minimum of 120 per cent of their base period tonnage receipts from the mills, increase of 20 per cent over their minimum tonnage prior to the strike.

It was understood last week the warehouses may decline orders calling for more than 4000 pounds of carbon steel, 2500 pounds of alloy steel, 1000 pounds of stainless sheets, 500 pounds of stainless bars and plates, and 500 pounds of stainless pipe and tubing.

Distributors' stocks are badly depleted and unbalanced as result of the steady drain over the past two months. Latest data show inventories of industrial steel warehouses are now 40 per cent of normal post-war levels, stocks having returned to the lowest point since the beginning of the defense program.

**Pittsburgh**—Warehouses closed during the strike are now shipping on dated orders from floor stocks. New orders are being taken with delivery promises of a week to ten days.

**Chicago**—Warehouse receipts since strike's end are negligible. End of strike brought a swell in inquiries.

**San Francisco**—Stocks of common required items have been nearing the vanishing point, despite support received from mills in the area which had continued to operate during the nearly two month shutdown of the major part of the nation's steelmaking facilities.

**New York**—Allotments to warehouses have been increased to 120 per cent from 100 per cent of the base period. Also, the warehouses have been given higher priority for class A steel product shipments after atomic energy and B-5 ratings.

**Philadelphia**—Effective through September, October and November, warehouses will receive 120 per cent of their base period receipts. Until now these quotas have been set up on the basis of 100 per cent. The distributors have been advised of the desirability of limiting orders.

## Canada . . .

**Toronto, Ont.**—Iron and steel production in Canada has been running close to capacity but curtailments in July and August are indicated as result of the holiday season. Also, imports of iron ore from the United States due to the U.S. steel strike may be reflected in a reduction in operations.

For May, pig iron production amounted to 237,079 net tons equivalent to 92.2 per cent of daily rated capacity and compares with 214,330 tons or 86.2 per cent for April, and with 218,989 tons or 93.9 per cent of the capacity as of May, 1951. For the five months ended May 31, pig iron production totaled 1,100,479 net tons compared with 1,045,017 tons in the like period of 1951.

Production of steel ingots and castings in May was 330,524 net tons, daily average of 98.8 per cent of rated capacity and compares with 316,641 net tons in April or 97.8 per cent, and with 313,312 tons or 93.7 per cent for May, 1951. In the five months ending with May, cumula-

tive production of steel ingots and castings was 1,609,460 net tons against 1,531,176 tons in the 1951 period.

## STRUCTURAL SHAPES . . .

### STRUCTURAL STEEL PLACED

4200 tons, bridge superstructure, Red river, Miller's Bluff, La., to Allied Structural Steel Co., Chicago.

300 tons, substation, Seattle, Wash., Bonneville Power Administration, to Bethlehem Pacific Coast Steel Co., San Francisco.

### STRUCTURAL STEEL PENDING

2000 tons, estimated, superstructure, Hunt's Falls bridge, Lowell, Mass.; bids Aug. 26, Boston

130 tons, steel stringer bridge, Fall River, Mass., Campanella & Card Construction Co., Hills Grove, R. I., low; also 70 tons reinforcing bars.

175 tons, state bridge, Monroe county, Pennsylvania; bids Aug. 8.

## REINFORCING BARS . . .

### REINFORCING BARS PLACED

100 tons or more, students union building, Alabama Polytechnical Institute, Auburn, Ala., to Virginia Steel Co., Birmingham; Batson-Cook Co., West Point, Ga., general contractor.

### REINFORCING BARS PENDING

360 tons, superstructure, multi-span steel truss bridge, Merrimack river, Amesbury-Newburyport, Mass.; bids Aug. 12, Boston.

210 tons, three bridges, Tolland-Willington, Conn.; bids Aug. 4, Hartford.

## PIPE . . .

### STEEL PIPE PENDING

Unstated tonnage, 4200 ft., 24-in. steel force main, Fairfax, Va.; bids Aug. 7.

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Baltimore & Ohio, 62 diesel-electric locomotive-units, thirteen 1500-horsepower road switchers and twenty-seven 1500-horsepower road freight units going to Electro-Motive Division, General Motors Corp., La Grange, Ill.; ten 1600-horsepower road freight units to the American Locomotive-General Electric Companies, Schenectady, N. Y.; one 1600-horsepower road switcher and nine 1600-horsepower road freight units to the Baldwin-Lima-Hamilton Corp., Eddystone, Pa.; and two 1600-horsepower road switchers to Fairbanks-Morse & Co., Chicago.

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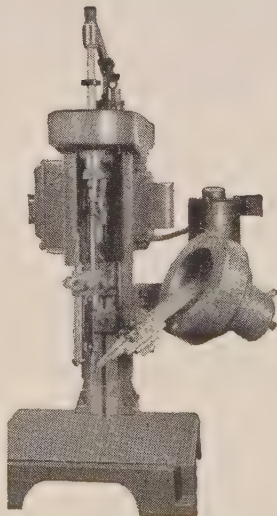
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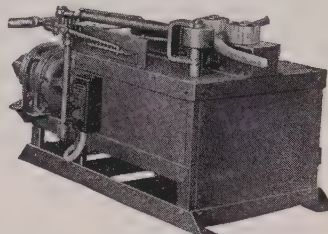
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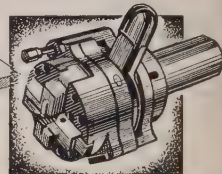
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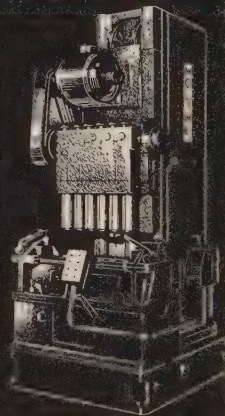


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CONSTRUCTION—ENTERPRISE—ORGANIZATIONAL CHANGES

## EC Orders \$1 Billion Expansion

Atomic Energy Commission, Washington, let two contracts totaling close to \$1 billion for expansion of its atomic energy plants at Oak Ridge, Tenn., and Paducah, Ky. The Oak Ridge work will be done by Maxon Construction Co., Dayton, O., while the Paducah expansion work will be done by F. H. McGraw & Co., Hartford, Conn. Carbide & Carbon Chemicals Co., a division of Union Carbide & Carbon Chemicals Corp., will operate both plant additions. Giffels & Vallet Inc., Detroit, and Sargent & Lundy Inc., Chicago, are the architects.

## Ampco Appoints Distributor

Ampco Metal Inc., Milwaukee, appointed Western Oxygen Co., Seattle, as exclusive distributor of Ampco Melvold products in that area.

## Gunnison Building Harrisburg Plant

Gunnison Homes Inc., New Albany, Ind., is erecting a plant in Harrisburg, Pa., for the prefabrication of its new steel insulated troop shelters, field hospitals and other military

buildings. The plant and office structures are scheduled to be occupied by Gunnison in April, 1953.

## Abitibi Power To Treat Iron Pyrites

Abitibi Power & Paper Co., Toronto, will erect a plant in Port Arthur, Ont., to extract sulphur from iron pyrites. The plant will be in operation by this fall. The iron pyrites to be burned in the plant will come from Normetals Mining Corp. Ltd., Noranda, Que., until a source of pyrites is found in Northwestern Ontario.

## Fluorspar Output To Increase

Supplies of acid grade fluorspar will be increased by 50,000 tons a year as the result of an agreement between Defense Materials Procurement Agency and St. Lawrence Fluorspar Inc., Wilmington, Del. Extensive improvements and additions will be made at the company's Wilmington plant and at the Canadian properties of its affiliated concern, St. Lawrence Corp. of Newfoundland, Canada. Expansion will include construction of a sink and float plant at the Newfoundland site and the construction of a new flotation mill in Wilmington. The government agreed to advance the company up to \$1,250,000 to get the expansion under way. The contract covers a period of four years or until 150,000 short tons of final concentrates have been produced from the additional facilities. An earlier agreement between DMPA and Ozark-Mahoning Co., Tulsa, Okla., provides for an increase of 20,000 tons a year.

## Bohn Aluminum Assigns Export Work

All export activities of Automotive Replacement Products Division, Bohn Aluminum & Brass Corp., Detroit, are to be handled by Borg-Warner International Corp., Chicago. Bohn is a manufacturer of bearings, connecting rods and other automotive engine components.

## Allis-Chalmers May Buy Iowa Firm

Negotiations are under way for acquisition of LaPlant-Choate Mfg. Co. Inc., Cedar Rapids, Iowa, by Allis-Chalmers Mfg. Co., Milwaukee. The Iowa firm manufactures five sizes of earth-moving equipment.

## Lukens Steel To Open Ohio Branches

Lukens Steel Co., Coatesville, Pa., will enlarge its sales activities in August by establishment of branch offices in Cincinnati and Columbus, O. Lukens formerly was represented in

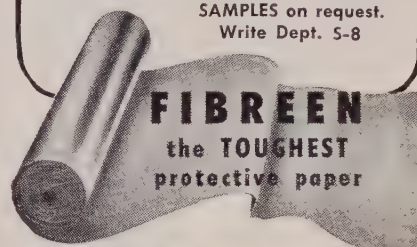
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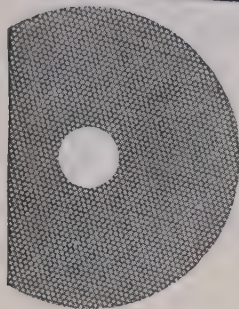
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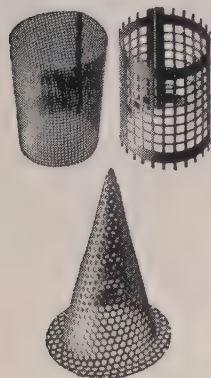
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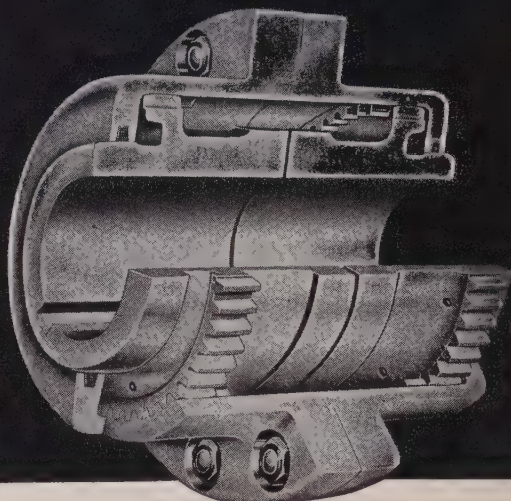
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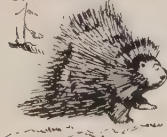
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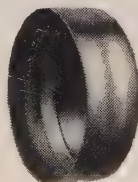
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MODEL 450

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DESIGNERS AND MANUFACTURERS OF  
MODERN METALWORKING MACHINES





the Cincinnati area by William B. Harris & Son. The remainder of the estate has been served by the Cleveland and Pittsburgh sales offices of the company.

### Steiner-Ives Builds Larger Plant

Steiner-Ives Co., Newark, N. J., manufacturer of industrial ovens and heat-treating equipment, is building a new plant at Union, N. J. The company will move to the enlarged facilities in late summer.

### Air Transport Mfg. To Expand

Air Transport Mfg. Co., Hollywood, Calif., built an addition to its plant for manufacture of aircraft component parts for the government.

### Baker-Raulang Names Representative

Baker-Raulang Co., Cleveland, appointed Erie Equipment Co., Erie, Pa., as its industrial truck sales representative. L. A. Jensen is owner of Erie Equipment.

### Knapp Stimulates Activity in Canada

Production of an important variety of chemical and process industries equipment will begin soon in Canada as a result of negotiations being carried on by some of Canada's largest mining and manufacturing companies with Knapp Mills Inc., New York. The latter company produces lead-clad steel and lead-clad copper, both of which are rapidly becoming standard for use in the production of acids and chemicals, electrometallurgical processes, petrochemical products, the nuclear industries and in government ordnance. Knapp Mills is planning to license the production of these products in Canada.

### West Coast Tool Engineers Organize

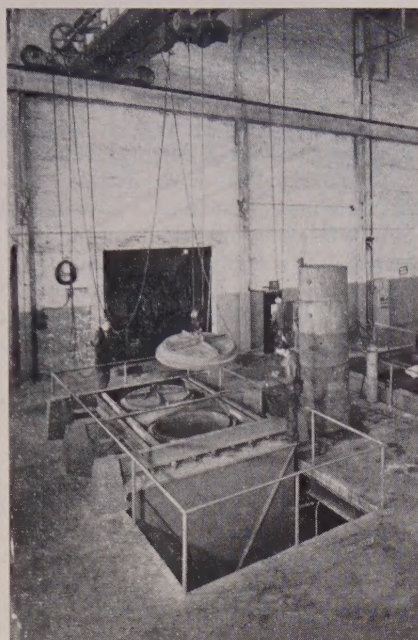
American Society of Tool Engineers, Detroit, established a chapter in Santa Clara valley, California. Officers are: V. E. Diehl, chairman; W. C. Lanyon, first vice chairman; E. F. Roskowski, second vice chairman; G. B. Randolph, secretary; R. D. Harper, treasurer.

### Hart Equipment To Open New Plant

Hart Equipment Corp., Toronto, Ont., producer of chromium furniture, will open a subassembly plant in Winnipeg, Man., about Sept. 1. Hart Equipment makes conduit piping in addition to chromium furniture.

### Belting Producers Merge

New York Belting & Packing Co., Passaic, N. J., merged with the L. H. Gilmer Co., Philadelphia, under the name of the former company. Gilmer is a producer of V-belts, flat belts, "timing" belts and shock pads. B. F. Ruether, vice president of New York



### Twin Retorts

In this partial view of the new Modern Steel Heating Co.'s plant at 1010 W. 122nd street, Chicago, are two twin-retort gas carburizing and heat treating furnaces. Modern designed and built the furnaces on the site of the plant. Each retort has a capacity of 20,000 pounds, making capacity of both ovens 80,000 pounds at one time

Belting, will be in charge of the expanded organization.

### Syntron Opens Chicago Headquarters

Syntron Chicago Sales Co., which represents and sells vibratory material handling equipment, power tools, selenium rectifiers, paper joggers, shaft seals, etc. produced by Syntron Co., Homer City, Pa., opened new headquarters at 236 N. Crawford Ave., Chicago.

### Cleco Appoints Distributors

Cleco Division, Reed Roller Bit Co., Houston, appointed Oliver H. Van Horn Co., New Orleans; Bethlehem Supply Co. Inc., Bethlehem, Pa.; and Peerless Supply Co. Inc., Shreveport, La., as distributors for its air tools and accessories.

### Industrial Bearing Co. Moves

Industrial Bearing Co., Buffalo, moved to a new location at 548 E. Delavan Ave. It distributes ball and roller bearings.

### North Enlarges Research Facilities

H. W. North Co. Inc., Erie, Pa., engineering contractor, moved its headquarters and all divisions of the business to a building at 1701 Parade St. Enlarged research and development departments will accommodate

## California Calling ENGINEERS

A better job, a better life, a better future can be yours in California—at Lockheed Aircraft Corporation.

On the job, you enjoy increased pay; fine, modern working conditions; association with top men in your profession—men who have helped build Lockheed's reputation for leadership.

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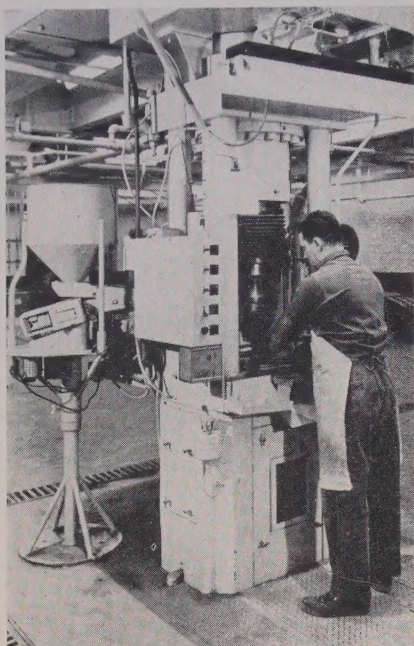
My name \_\_\_\_\_

My address \_\_\_\_\_

My city and state \_\_\_\_\_

My occupation (type of engineer) \_\_\_\_\_





## A Pressing Matter

This operator at Simonds Abrasive Co., Philadelphia, is working an automatic high-speed tableting machine made by the F. J. Stokes Machine Co., Philadelphia. Simonds uses the machine to press grinding wheels to shape

further expansion of new contract engineering activities undertaken by the company in connection with heavy industrial machinery, materials handling and chemical processing equipment.

## Parker Appliance Appoints Agent

Leinart Engineering Co., Knoxville, Tenn., was named distributor for O-ring seals manufactured by Parker Appliance Co., Cleveland.

## Quaker Rubber Opens Warehouse

A new stock-carrying branch warehouse and sales office were established in Minneapolis by Quaker Rubber Corp., a division of H. K. Porter Co. Inc., Pittsburgh. Under the overall supervision of T. H. Olson, midwest district manager, the warehouse is managed by Alex Rogan.

## Orban Offers Schiess Machine Tools

Europe's largest builder of heavy machine tools, Schiess A. G., Duesseldorf, Germany, appointed Kurt Orban Co. Inc., New York, as its exclusive American distributor. Schiess equipment, such as vertical boring mills, vertical turret lathes, horizontal boring and milling machines, will be exported to the United States for the first time in the company's 72 year history. Gear hobbors, crankshaft turning machines and locomotive tire lathes will also be available in this

country. Schiess is setting up technical offices in this country to supplement Kurt Orban's service center in Cleveland.

## Stockham Valves & Fittings Expands

Stockham Valves & Fittings Co., Birmingham, received government approval for an addition and improvements to its plant, costing about \$1,250,000. As part of the expansion program, a new building will be erected to house production facilities for making cast steel valves and another building to house continuous annealing equipment.

## Hyster Moves Export Department

Hyster Co., Portland, Oreg., moved its export department to Peoria, Ill. Clyde R. Dean Jr., export sales manager, will continue in charge of the department. Hyster manufactures lift trucks, mobile cranes, straddle trucks, turret trucks, and attachments for caterpillar tractors.

## Rosenberg Occupies New Plant

Rosenberg Bros. & Co., manufacturer of screw drivers, key chains, etc., moved to its new plant in Smithtown, N. Y.

## Hydro-Aire Opens Second Plant

Hydro-Aire Inc. is occupying office and manufacturing space at 738 N. Victory Blvd., Burbank, Calif. This is in addition to present facilities at 3000 Winona Ave., Burbank. The firm manufactures hydraulically, pneumatically and electrically operated valves for aircraft and aircraft engines.

## Eutectic Welding Offers New Service

Eutectic Welding Alloys Corp., Flushing, N. Y., inaugurated a railroad welding advisory service to give railroads the benefit of specialized experience in uses of Eutectic low temperature welding alloys. The new service is headed by Hugh H. Hurley.

## Metallic Products Mfg. Corp. Formed

Randolph Foundry, Randolph, N. Y., is being merged with Metallic Ladder Co., Washington, which is moving its manufacturing facilities to Randolph. The combined firm will be known as the Metallic Products Mfg. Corp.

## Krasilousky Moves Headquarters

Mike Krasilousky Trucking & Millright Co. Inc. established its headquarters office at 40 Sunrise Highway, Valley Stream, L. I. The firm's office at 220 Centre St., Manhattan, N. Y., is being maintained as a service office, supplementing its branch at 426 Lafayette Ave., Brooklyn, N. Y. The address which was men-

tioned in the July 21 issue of STEEL referred to the new factory address of William S. Doig Co., Maple Avenue, Haverstraw, N. Y. General offices of that firm remain at 894 Manhattan Ave., Brooklyn, N. Y. The Krasilousky firm moves entire factories as well as small and large items and had the contract for moving the Doig plant.

## Algonquin Chemical Changes Hands

National Distillers Products Corp., New York, is acquiring the business and assets of Algonquin Chemical Co., manufacturer of chlorine, caustic soda and sulphuric acid, with plant located at Huntsville, Ala.; Dubuque, Iowa; Lawrence, Kans.

## Gries Reproducer Names Distributors

Gries Reproducer Corp., New York, producer of small zinc die castings, wing nuts, buckles, hardware, etc., appointed as distributors in their respective districts: A. A. Hume, Minneapolis; Jay C. Angel & Co., Chicago.

## Griscom-Russell Consolidates Offices

Griscom-Russell Co., Massillon, Ohio, consolidated its entire executive, administrative, engineering and general sales departments at Massillon. The company is a large producer of heat transfer apparatus and recently celebrated its 85th anniversary.

**REBUILT AND NEW**

**GUARANTEED MOTORS**

**M.G. SETS • GENERATORS**

Hoists • Compressors • Transformers

Units of Every Size and Description

**WE'LL SELL, BUY OR TRADE**

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**1334 W. CERMAK ROAD**

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Gondolas, Composite or All Steel, 50-Ton and 70-Ton

Cabooses, Eight Wheel, Cupola Type  
Hoppers, Covered, All-Steel, 70-Ton  
Hoppers, Twin, All-Steel, 50-Ton, Cross Dump  
Hoppers, All-Steel, 70-Ton, Cross Dump  
Tank, 3,000-Gallon, High Pressure

## EXTRA LONG FLAT CARS

40 & 50-Ton Capacity, Length 70' and 74'

## STANDARD GAUGE AIR DUMP CARS

Side Dump, 16-Yd., 30-Ton Lift Door  
End Dump, 20-Yd., 50-Ton Drop Door      End Dump, 10-Yd., 30-Ton Lift Door

## STANDARD GAUGE DIESEL-ELECTRIC ROAD SWITCHING LOCOMOTIVE

1500 H.P., 120-Ton, Type 0-4-4-0

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#### WANTED

Experienced Sales Representative or Manufacturers Agent to cover Pittsburgh area for nationally known manufacturer of grinding wheels. An excellent opportunity for the right man. Please give experience, age, references and all details in first letter. Address Box 550, STEEL, Penton Bldg., Cleveland 13, Ohio.

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5 years practical experience in steel mills. Roll Design - Structural - Merchant Products - Hand and Continuous Mills - Engineering - Metallurgy background. Capable of directing complete operation. Write Box 545, STEEL, Penton Bldg., Cleveland 13, Ohio.

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4 YEARS WAREHOUSE EXPERIENCE, VARIOUS STEEL PRODUCTS, METALLURGICAL BACKGROUND, 38 YEARS OLD, PROVEN SUCCESS IN SALES PROMOTION. WRITE BOX 546, STEEL, PENTON BLDG., CLEVELAND 13, OHIO.

SALES ENGINEER, MECHANICAL ENGINEERING graduate, age 37. Fifteen years field experience including conducting meetings for plant personnel, distributor sales promotion, training of direct factory salesmen. Interested in sales management. Reply Box 551 STEEL, Penton Bldg., Cleveland 13, Ohio.

### Accounts Wanted

#### MANUFACTURERS AGENT

Industrial accounts wanted by reliable sales firm with Chicago office and covering Illinois and Wisconsin. Write Box 547, STEEL, Penton Bldg., Cleveland 13, Ohio.

#### CLEVELAND, OHIO

Sales Executive, twenty years experience in the metallurgical, electrical and industrial equipment field, organizing a manufacturers sales agency. Correspondence invited with principals having established accounts. Write Box 549, STEEL, Penton Bldg., Cleveland 13, Ohio.



10 to 12 ft. lengths  
ALL METALS

Also Screw Machine Products to Order

### EASTERN

Machine Screw Corp.  
New Haven, Conn.  
Makers of H & G Die Heads

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## STAINLESS TUBE SALESMAN

Experience essential — opportunity for advancement.

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International Coverage  
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A brief letter telling us your needs or experience, will receive our prompt and confidential attention.

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Will bend 20' x 1/4" to 6' x 3/4" Pl.

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600 amp. Lincoln Automatic Beam Traveling Head for welding Steel Cylinders 10" to 44" dia., 8' lg. Priced for Quick Sale.

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## 74" UNGERER BACKED UP LEVELER

Late Type—Rebuilt

23 Work Rolls

1-11/16 x 81" Long

Capacity 16 Gauge and Lighter

Complete with  
Motor and Controls,  
Including Runout Table

### LANG MACHINERY COMPANY

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## FOR SALE

## HOT COIL SPRING MACHINERY

Coilers, Grinders, Furnaces, etc.,—all or part

Very Modern Heat Treat Furnace

### Hardening Unit

Stewart-Sunbeam gas or oil  
Cap.—3500 lbs/hr  
Max. Temp.—1700° F  
Serial Number—24525  
Max. Work Ht.—12"  
Overall Dimen.—11'-6" x 30'-4"  
Usable Hearth—54" x 25'

### Draw Unit

Stewart-Sunbeam gas or oil  
Cap.—3500 lbs/hr  
Max. Temp.—1200° F  
Serial Number—24527  
Max. Work Ht.—12"  
Hearth—48" x 25'

### H. K. PORTER COMPANY, INC.

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FOR SAFETY**

# UPSON- WALTON turnbuckles

Turnbuckle heads are drilled and tapped in perfect alignment, so that end fittings pull evenly, and assure maximum strength and safety.

All threads are American National Coarse series, class 2 fit, and will readily assemble with any end fitting threaded to this standard.

Weldless, drop-forged steel, hex-end turnbuckle bodies are made in accurate dies to assure uniformity, dependability, and safety.

Upson-Walton turnbuckles are engineered for safety... see your nearby distributor for prompt and efficient service from stock.  
Write for free catalog on wire rope fittings.

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81 years of experience

MANUFACTURERS of ALL THREE

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## Completely Air Conditioned

Wigton-Abbott Corp., Planfield, N. J., is building for Marlin-Rockwell Corp. Jamestown, N. Y., this plant which will have two separate and distinct air conditioning systems. In the section where super-precision bearings assembly requires closely-controlled atmospheric conditions, a 110-ton unit made by Carrier Corp., Syracuse, N. Y., will be installed. A 515-ton Carrier unit will be put in the general manufacturing area for standard ventilation and cooling.

## Lea Mfg. Organizes Subsidiary

Lea Mfg. Co., Waterbury, Conn., organized a wholly owned subsidiary, Lea Mfg. Co. of Michigan Inc., to manufacture Gripmaster polishing wheel cement. The subsidiary purchased the patent rights, trademark rights and goodwill of this product from Nelson Chemicals Co., Detroit. A plant is under construction in Detroit which will house Lea and Gripmaster operations. The Detroit manager is Dee F. Mosher, 550 S. Glenhurst, Birmingham, Mich.

## Leslie Enlarges Plant

A wing providing increased engineering space was added to the plant of Leslie Co., Lyndhurst, N. J., manufacturer of pressure and temperature regulators and controllers.

## Palley Buys Ing-Rich Metal Plant

Palley Mfg. Co., Pittsburgh, purchased Ing-Rich Metal Products Co.'s plant and stock at East Palestine, O. Palley will make steel kitchen equipment in the new quarters.

## Bryant Heater Appoints Distributors

Bryant Heater Division, Affiliated Gas Equipment Inc., Cleveland, appointed Bryant Equipment Corp. as the Bryant distributor in Connecticut and in Westchester and Putnam counties, New York. M. H. Laundon Jr., formerly Bryant's New York branch manager, is president of the newly-formed distributorship; W. H.

Frank is vice president, with offices at 1131 Campbell Ave., West Haven, Conn. Malcolm McLean is the newly appointed manager for Bryant's New York branch.

## Vacu-Blast Co. Opens Plant

Vacu-Blast Co. Inc., San Mateo, Calif., opened its new plant in Belmont, Calif. This plant is designed to handle all manufacturing operations of the company.

## Chevrolet Expansion Progresses

A 360,000 square-foot addition to the River Road plant of Chevrolet in Buffalo, part of Chevrolet's \$30 million defense program expansion in the area, now is about 70 per cent completed. Steel framework for Chevrolet's forge plant in Tonawanda, N. Y., has been erected and pouring of foundations and sinking of piles for a foundry are continuing.

## Gar Wood Buys United Stove

Gar Wood Industries Inc., Wayne, Mich., acquired in excess of 80 per cent of the outstanding stock of United Stove Co., Ypsilanti, Mich., which will be operated as a subsidiary company and will continue manufacture of kerosene stoves, kerosene and fuel oil burners, automotive parts and stampings. Facilities at Ypsilanti will be used also for various manufacturing operations now conducted at Gar Wood divisions and by subcontractors.